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## THE RAILWAY GAZETTE

151



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## CONTENTS

	PAGE
Editorial Notes	157
South Australian Government Railways	159
Drastic U.S.A. Travel Restrictions	159
Loudspeakers in Railway Service	160
High Boiler Pressure 80 Years Ago	160
A Glimpse into the Past	161
Letters to the Editor	162
The Scrap Heap	163
Overseas Railway Affairs	164
Electric Traction Section	165
Accommodation in Coaching Stock	166
New G.W.R. 4-6-0 Locomotive, "1,000" Class	168
All-Steel L.M.S.R. Mineral Wagon	170
Personal	171
Transport Services and the War	174
Stock Market and Table	180

## INDEX

An index to the eighty-second volume of THE RAILWAY GAZETTE covering the issues from January 5 to June 29, 1945, has been prepared, and is now available free of charge on application to the Publisher

## NOTICE TO SUBSCRIBERS

Consequent on paper rationing, new subscribers in Great Britain cannot be accepted until further notice. Any applications will be put on a waiting list, and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions. Orders for overseas destinations can now be accepted

## POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind readers that there are still some overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit for such dispatch

## TO CALLERS AND TELEPHONERS

Until further notice our office hours are: Mondays to Fridays 9.30 a.m. till 5.30 p.m.

The office is closed on Saturdays

## ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

## ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

## The End of the Japanese War

As we were about to close for press, it was announced, at midnight on August 14-15, that the Far Eastern war had ended with the surrender of Japan and the acceptance by that country of the terms laid down at the Potsdam Conference. It became known a week ago that the Japanese Government was prepared to surrender to the United Nations subject to the retention of the Mikado as head of the nation. It was soon made clear that whatever the Allied reply to this would be, in fact the Mikado would be subject to the over-riding administration of the occupying powers. The entrance into the Far Eastern war of Russia, and the delivery of two atomic bombs, no doubt accelerated the decision of the Japanese administration to surrender, although of the outcome of the Pacific war the only factor in doubt for some time had been the date of capitulation. The surrender talks, many feel, had been unduly prolonged, and once again business and trade in Great Britain has been hindered by the uncertainty as to when the official two-day holiday to celebrate the end of the war would be announced by the Government. They were held on Wednesday and Thursday, which explains our late publication this week, but various unofficial celebrations before this had demonstrated the absurdity of organising rejoicing according to a Government plan.

\* \* \* \*

## Railway Representation in Parliament

As might have been expected from the outcome of the General Election, the railway representation in the House of Commons has undergone a striking change. Whereas in the previous parliament there were a dozen M.P.s who were directors of railway companies, there are now but two—Colonel Sir Ralph G. C. Glyn, who is on the board of the London Midland & Scottish Railway Company, and Brig.-General G. S. Harvie Watt, a director of the Great Western Railway Company. On the other hand, there are now 21 railwaymen sitting on the Labour benches, most of them drawn from the National Union of Railwaymen. Presumably, these members are as convinced of the desirability of nationalising the railways as the directors were of maintaining a system of private enterprise. At least they represent as great a "vested interest" in the House of Commons as did the railway directors against whom that charge was sometimes levelled. The position has changed greatly since earlier this century. In our February 2, 1906, issue, we recorded that in the Parliament which had then just come into being there were "only 21 directors of railways in the United Kingdom (not including light railways) as compared with 53 before the dissolution." The coal mining industry, which also is threatened with nationalisation, is now represented in the House by no fewer than 35 members who previously were miners.

\* \* \* \*

## Great Britain's Wartime Imports

Statistics of the United Kingdom's imports, published by the Board of Trade, show that retained imports, excluding munitions and supplies imported direct by allied forces in this country, rose from £839,479,000 in 1939 to £1,298,836,000 in 1944. It is known that the fall in exports has been of the order of 69 per cent. in volume, and that average values of exports in 1944 were up by 78 per cent. The average values of imports rose by 91 per cent. Because of the incidence of lend-lease, mutual aid and so forth, it is impossible to work out accurately the excess of imports over exports in the total balance of payments. Nevertheless, the deficit in commercial trade of more than £1,000,000,000 last year indicates that the war has resulted in a large accumulated debt and a great current adverse balance of trade, which cannot be supported indefinitely by such means as lend-lease and the growth of liabilities overseas. The time is approaching rapidly when it can be supported only by increased exports. The need for raising the level of shipments to overseas customers has been stressed frequently enough, but much more practical means than exhortation will be required if British trade is to play its full part in restoring the balance of trade. To the engineering industries, in particular, because of the widespread need for their products, every encouragement to supply overseas customers should be accorded.

\* \* \* \*

## Enemy-Owned Patents

The Council of the Chartered Institute of Patent Agents has had under consideration for some time the position of enemy-owned patents and patent applications and certain other matters arising from war conditions. It has now issued a memorandum of its recommendations. Separate action, in the opinion of the council, should not be taken on behalf of this country whereby enemy nationals, after the war, would be denied rights under the International Convention for the protection of Industrial Property arising on basic applications filed subsequent to the termination of hostilities, or filed at such a date that the ordinary period of twelve months allowed for a Convention claim will not have expired when the application in the United Kingdom is filed. This country has ratified the Convention and is bound by its conditions

unless it withdraws from it. Any remedy, therefore, as regards ordinary Convention applications, should be sought along the lines of a revision of the Convention by the contracting states. On the other hand, the Council recommends denial of any moratorium to enemy owners of British applications pending at the outbreak of war which should remain dead, subject to the allied countries acting in concert. Among other recommendations are:—the denial of any moratorium to enemy owners of lapsed British patents; no extension beyond the ordinary term for enemies to file Convention applications here; enemy-owned British patents retained in force by British licensees to be taken over by the Custodian of Enemy Property with power to assign patents to exclusive licensees.

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### Overseas Railway Traffics

There has been a moderate revival in the prices of stocks of British-owned railways in Argentina, partly, no doubt, under the stimulus of recent payments of arrears of debenture interest. The latest announcement in this respect is of a year's interest on Central Argentine 5 per cent. debenture stocks, bringing payments up to December 31, 1941. Traffics for the 5th week of the current financial year continue on the up grade. Apart from the figures in the accompanying table the Argentine North Eastern shows an increase of £3,719 for the week and the Entre Ríos one of £2,437. Notwithstanding the fall of £2,940 in Antofagasta receipts for the 31st week of 1945, the aggregate total of £939,980 gives an advance of £93,900. Nitrate traffics for the 30 weeks to the end of July show a decrease of £6,659 and the Taltal for the first month of the new financial year is £30 down. Brazilian railway traffics keep up well, the Leopoldina having an increase to date of £125,212 and the Great Western one of £93,900. The statement by the Chairman of the San Paulo Railway is also on the optimistic side.

	No. of week	Weekly traffics	Inc. or dec.	Aggregate traffic	Inc. or dec.
		£	£	£	£
Buenos Ayres & Pacific*	... 5th	126,125	+ 7,813	607,812	+ 23,500
Buenos Ayres Great Southern*	5th	194,875	+ 7,500	954,750	+ 64,563
Buenos Ayres Western*	... 5th	62,688	+ 1,188	338,750	+ 17,250
Central Argentine*	... 5th	188,925	+ 7,156	924,588	+ 22,900
Canadian Pacific	... 30th	1,984,200	+ 153,000	36,741,200	+ 363,000

\* Pesos converted at 16 to £

Canadian Pacific gross earnings for the first half of 1945 amounted to £30,945,600, an increase of £30,600 in comparison with the first half of 1944, but the aggregate net earnings of £3,444,000 were lower by £1,092,000. Net earnings in the month of June showed an increase of £22,800.

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### Nord Railway Sterling Bonds

It is announced that dealings in the 6 per cent. bonds of the Northern Railway of France have been restored to a normal basis. These bonds were issued in March, 1922, at 90 per cent., to a total of £5,000,000, and their amount now quoted is £3,206,000. They are redeemable at par before December 31, 1950, by annual drawings on July 1 for repayment on September 1. In July, 1943, it was learned from neutral sources that drawings had been made in Paris on September 1 in 1940, 1941, and 1942. In view of this information the Stock Exchange Committee for General Purposes in July, 1943, confirmed a resolution that "under Rule 20 the provisions of Rule 113 be waived (1) in respect of all dealings which have taken place in Nord Railway Company six per cent. sterling bonds since July 3, 1939; (2) in respect of future dealings in Nord Railway Company 6 per cent. sterling bonds until further notice." This was in effect a decision to ignore the drawings for the time being, and to regard drawn and undrawn bonds as of equally good delivery. Normally under Rule 113 drawn bonds become bad delivery, and this procedure is now resumed. Official notice has been given of the drawings at the offices of the company in Paris in the years 1940-45 of 5,238 bonds, amounting together to the sum of £1,494,000. These drawn bonds are redeemable on September 1, 1945, on presentation of the necessary coupons, at the offices of N. M. Rothschild & Sons, New Court, St. Swithin's Lane, London, E.C., who will require a suitable interval for examination.

\* \* \* \*

### Jubilee of American Main-Line Electrification

Fifty years ago, in 1895, three of the principal American railways, the Baltimore & Ohio, the New York, New Haven & Hartford, and the Pennsylvania, introduced electric traction. The most important of the three installations, from many points of view, was that made by the first mentioned railway in the so-called Belt Line Tunnel under the city of Baltimore, built as part of a plan to avoid having to ferry trains across the harbour. Electric traction was adopted in August, 1895, to eliminate the smoke nuisance and some powerful electric locomotives, weighing 90 tons, were constructed and used to haul trains through with the steam locomotive attached. A peculiar type of channel over-

head conductor, formed of angle bars, at first was used, but afterwards it was replaced by a third rail. The motors had their armatures direct on the axles. This section of line is still worked electrically. On the New Haven line in June, 1895, trains drawn by motor luggage vans were put into service on the Nantasket Beach branch and operated on the overhead trolley system, later replaced by a third rail. The Pennsylvania, again using the trolley system, electrified its Mount Holly branch in July, 1895, using combination luggage and passenger motor coaches to haul ordinary cars as trailers. Although these installations disappeared, both the New Haven and the Pennsylvania now have large mileages worked on the 11,000-volt single-phase system.

\* \* \* \*

### Central Railway of Brazil Electrification

In 1935 the Central Railway of Brazil placed a contract with the Metropolitan-Vickers Electrical Co. Ltd. for the supply and installation of the first stage of the electrification of that system. The work was to be completed in two stages; first the inner and outer suburban area of Rio de Janeiro, extending to Nova Iguaçú and Bangú, and secondly the main lines to Santa Cruz and Barra do Piraí. The contract included the supply of 60 three-coach electric trains, 2 sub-stations, transmission and overhead line and gear, supervisory control, electric signalling and track circuiting installation and complete workshops, and so forth. A comprehensive description of the equipment was published in our issue of March 4, 1938. The whole of this work was completed before the war, but the continuation of the programme had to be postponed on the outbreak of hostilities. The programme is now being resumed, and a contract for the extension of the first stage of the electrification has been placed with the Metropolitan-Vickers Electrical Co. Ltd. for an additional 30 three-coach trains, extensions to 2 sub-stations, and a considerable number of spares. The sum involved in the contract is approximately £1,000,000 sterling.

\* \* \* \*

### "Right-of-Way Grading"

There can be little dispute that the worst enemy of railway track is water. Tens of thousands of pounds, in the aggregate, have been spent in drainage schemes of various kinds to conduct water away from railway formations, usually after it has damaged the track by slips, subsidence, or in other ways. Many lines were laid originally when constructional cost was being held to a minimum; the width of cuttings and banks was severely restricted; ditches were kept as close to the track as possible, so that no more land might be acquired than absolutely necessary. In the course of time, as water has done its insidious work, while the weight and speed of traffic have increased, the inadequacy of much of this early work has become apparent, but the cost of labour has been a deterrent to many desired improvements. In the United States, however, it is realised that the availability of modern mechanical earth-moving equipment has altered the situation completely, and with its help much is being done to-day in what is termed "right-of-way grading." This includes improved drainage, the elimination of water-holding pockets, and the flattening of embankments that show a continual tendency to slip. Conditions which tend to favour blockage by snow-drifts are also being removed and the widening of embankments and cuttings, and the moving of drainage ditches well away from embankments are receiving attention. The filling of waterlogged pits adjacent to the line from which material was taken for embankments is also being undertaken.

\* \* \* \*

### State Limits to Trainloads in U.S.A.

The remarkable powers possessed by individual states in the United States to impose restrictions of various kinds on the railways within their borders are being challenged in an action now being brought in the Supreme Court by the Southern Pacific System against the State of Arizona. In the action, a supporting brief has been filed by the Association of American Railroads. According to Arizona law, no train running within the state may be made up to more than 70 bogie freight wagons or 14 passenger coaches, and all trains passing from adjacent states into Arizona, if necessary, must be reduced in length to conform to these limits. The limits were laid down originally, under pressure from the labour unions, in the interests of safe working, but it is pointed out by the railway company, in bringing the action, that increase in trainloads to the normal standards prevailing elsewhere actually increases safety also, by reducing the number of "meets" of opposing trains which have to be made on busy single track routes. During the war the Interstate Commerce Commission has ruled that state laws of this description shall be temporarily abrogated; indeed, had such laws remained generally operative, it would have been impossible to handle the volume of traffic that has been thrown on the railways by war

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conditions. The action, which concerns the post-war period, claims that the matter is of national concern; that there are no special conditions in Arizona justifying such restrictions in one state alone; and that the loading limits are "barriers or obstacles to the free flow of commerce."

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#### Collapse of a Firebox

The accident on the Southern Railway on April 23 when the crown of the firebox on a "Lord Nelson" class locomotive collapsed near New Milton Station, fatally injuring the fireman, was inquired into by Mr. J. L. M. Moore. A summary of his report appears at page 176. Although the main responsibility for allowing the water to get low is placed on the driver, who took over from another at Bournemouth Central, there was the excuse that he could scarcely anticipate that both men in the other crew could have neglected the matter as evidently they had done. Mr. Moore finds that the water must have been allowed by them to go down out of sight some time before they handed over and that they can have paid little or no attention to the gauge for a considerable period. The conduct of the first driver he considers inexcusable. The report dwells on the necessity of improving the construction of fusible plugs and recommends the railways to look into the question of design with a view to achieving more satisfactory results than is sometimes the case. For such a thing to be considered effective it must obviously give an unmistakable warning in good time. Mr. Moore also recommends using some device, such as a striped backplate, which will enable it to be distinctly seen whether there is water in a gauge glass or not, and so prevent the kind of blunder that occurred in this case.

\* \* \* \*

#### The New G.W.R. 4-6-0 No. 1,000

There is a peculiar interest in new locomotive designs emanating from Swindon, for it is becoming increasingly clear how much locomotive engineers generally are indebted to many of the ideas which have emanated from that historic railway centre. Mr. Hawksworth's new engine, No. 1000, which is described elsewhere in this issue, has been the subject of many guesses for months past. The official announcement shows it to be not so revolutionary as it was imagined to be in some quarters. The new boiler pressure, 280 lb. per sq. in., brackets it with Mr. Bulleid's 4-6-2s as the most highly pressed in the country. Although the conventional locomotive boiler has been built for higher pressures, this is getting fairly near the limit set by existing materials and methods of construction. The adoption of the double chimney and blast pipe may perhaps be considered as one way in which a railway may repay its debt to another. After Sir William Stanier's elevation to the position of Chief Mechanical Engineer of the L.M.S.R. in 1932, a number of characteristically Great Western features began to appear on the products of Derby and Crewe, where in fact they have become standard practice. Quite recently the double chimney and blast pipe have been applied successfully on the L.M.S.R., particularly to the rebuilt "Royal Scot" class; and now the compliment is returned by the construction of the first Swindon engine with that arrangement. The tender of No. 1000 is of great interest; to have produced a design with a full weight of 49 tons and an empty weight of only 22 tons 14 cwt. is an achievement which reflects great credit on all concerned.

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#### Locomotive Smoke Prevention

It is said that the first patent for a combined steam and air jet to assist in smoke abatement was granted in this country to an engineer named Ivison as far back as 1838. With British coal, however, the smoke nuisance has been less than in the United States, where many variants of the original idea have been tried, and a more serious approach to the matter has been made lately by a company called Bituminous Coal Research Incorporated. One aim of the latest device, no doubt, is to eliminate one of the disadvantages from which steam shunting locomotives suffer by comparison with their diesel-electric rivals, and in this connection it is significant, not only that the first 50 locomotives fitted have all been shunting locomotives of the Louisville & Nashville Railroad, but that the success of the device has resulted in an order to equip a further 50 shunters, as well as a 2-8-2 heavy freight locomotive and a light passenger Pacific. Steam-air jets are introduced on both sides of the firebox, either replacing staybolts or located between them; and their success in this application has been due to careful control of the length of the air tube, a smooth approach to it, the accurate centring and positioning of the steam nozzle in such a way as to effect the maximum entrainment of air, and the provision of a muffler for silencing purposes. Three jets are used on each side of the firebox of a shunting locomotive, staggered so as to give uniform coverage of the firegrate area, but more or larger jets may be needed for bigger fireboxes or the heavier steaming of road locomotives.

#### South Australian Government Railways

THE report of the South Australian Railways Commissioner for the year ended June 30, 1944, shows that the record figure for gross earnings, established in the preceding financial year, has been surpassed by £169,507. The increase is accounted for principally by heavy movements of wheat from storage depots; increased payments for the carriage of mails (including arrears); increased earnings from refreshment services; and increased payments by the Commonwealth Railways for maintenance and hire of locomotives. Passenger and freight traffic fell off somewhat, largely as the result of a reduction in the personnel and output in wartime industries, and reduced defence traffic movements. Working expenses rose, compared with the preceding year, by £551,563; of this increase, maintenance and renewals of permanent way and works accounted for £142,763; and motive power and maintenance of rolling stock for £278,187. Despite the further increase in gross earnings, the additional expenses have resulted in a total deficit of £474,319. General results are compared in the following summary:

	1942-43	1943-44
Miles open	2,547 <sup>t</sup>	2,548 <sup>t</sup>
Train miles	6,792,459	6,776,971
Passenger journeys	30,863,577	27,356,303
Goods, minerals, and livestock (tons)	3,459,855	3,672,725
Average haul (miles)	124.76	122.26
Operating ratio (per cent.)	78.2	85.2
	£	£
Capital cost of open lines	29,686,970	29,908,070
Gross earnings	5,832,475	6,001,982
Working expenses, including pensions	4,563,089	5,114,652
Net earnings	1,269,386	887,330
Interest, sinking fund, depreciation, etc.	1,342,063	1,361,649
Total deficit	72,677	474,319

The decrease in passenger receipts was common to both country and suburban travel. Country passengers numbered 3,065,139 in the year under review, against 3,197,942 in 1942-43, and the corresponding receipts were £1,043,099 and £1,052,267. The number of suburban passengers fell from 27,665,635 to 24,291,164. On the other hand, first class receipts increased by £40,844. The total tonnage of general merchandise conveyed fell from 1,853,672 tons in 1942-43 to 1,841,182 tons, and the receipts therefrom decreased by £33,262. Bookstall and refreshment room services brought in a total of £260,570, against £249,850 in 1942-43. The Government contribution of £120,000 to be applied towards paying 20 per cent. of the prescribed freight charges on the rail carriage of wool, manures, livestock, wheat, flour (*ex* country mills for the metropolitan area), and barley, continued throughout the year, and railway customers received the benefit of such reduction on the ordinary freight rates. The total value of this concession amounted to £202,910 for the year, or £82,910 more than the Government contribution of £120,000.

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#### Drastic U.S.A. Travel Restrictions

REVOLUTIONARY changes in passenger travel have taken place in the United States in connection with the re-deployment of American troops for service in the Far East after their return from Europe. Complaints have been made that whereas troops were treated with the greatest consideration when travelling across the United States for embarkation to the European theatre, on their return they are herded into "coaches"—the equivalent of British centre-corridor open third class cars—for journeys lasting from 48 to 120 hr. The magnitude of the problem may be understood when it is mentioned that on the recent arrival of the giant liner *Queen Elizabeth* in New York Harbour, 13,000 men were disembarked, and that to move them from the port required the use of 21 trains, made up of 233 coaches and tourist sleeping cars, 34 kitchen cars, and 42 baggage vans—309 vehicles to clear the contents of one ship.

In all, the re-deployment programme calls for a minimum of six rail journeys per man, including trips to and from his home on furlough to camps for additional training, and the final movement to a West Coast port. As a result, the U.S.A. 1945 passenger traffic is expected to exceed 100,000 million passenger miles, and thus to be at least 10 per cent. above the 1944 total. About 6,000 coaches and 4,000 Pullman cars already are permanently allocated to troop movements; 1,200 three-tier troop sleeping cars and 380 troop kitchen cars have been built specially for the same purpose and the number is about to be doubled; but this is not enough.

On July 7, therefore, the Office of Defense Transportation issued General Order No. 53, prohibiting the running of Pullman sleeping cars in ordinary passenger service from July 15 for any journey of less than 450 miles. The application of a similar

August 17, 1945

order in Great Britain would rule out all sleeping-car services except those operating between London and Inverness; in the United States the effect is to eliminate a large proportion of the sleeping cars on single overnight runs, as, for example, between New York and Washington, Boston, Pittsburgh, Buffalo, Montreal, and other cities; between Chicago and St. Louis, St. Paul, Minneapolis, and Kansas City; and on many similar and heavily patronised runs.

Between New York and Washington alone the Pennsylvania and Baltimore & Ohio Railroads had in service from 44 to 50 cars, and about 1,000 passengers will be affected nightly; similarly the "Owl" of the New Haven Company between New York and Boston, and the "Pittsburgher" of the Pennsylvania, between New York and Pittsburgh, were composed of sleeping cars only. The "Owl" has been transformed into a train of Pullman parlour cars, with restaurant car and lounge, and the "Pittsburgher" into an all-coach train with all seats reserved. Some important overnight runs, however, like that of the Southern Pacific all-sleeping-car "Lark" between San Francisco and Los Angeles, on a 470-mile route, escape the ban by a narrow margin of mileage.

In all, some 200 sleeping-car services are affected, and 895 cars have been withdrawn from public use. The Pullman Company has been required to hand over an equal number of cars for military use, but has been permitted to make its own selection of the cars thus transferred. Out of a total of 7,500 sleeping cars in the Pullman pool, roughly 5,000, or two-thirds, are now in use by the armed forces, and it is intimated that as the Atlantic-Pacific troop movements increase, even the one-third may be subject to further cuts. To the 5,000 sleeping cars, as previously mentioned, there must be added the 1,200 troop sleeping cars already in use and the further 1,200 building, as well as the 6,000 coaches so assigned.

The strain on American passenger train operation is all the greater in view of the fact that practically no new passenger stock of any description—other than the special troop cars and hospital trains—has been built during the years since the United States entered the war. At last, however, the War Production Board has authorised a commencement to be made on the large accumulation of orders that has been placed by the railways on the building firms for new passenger stock, and has assigned priorities for this purpose, but the acute shortage of the materials and components required makes it doubtful if there can be any easing of the situation for many months yet. Some of the travel restrictions are being lifted with the Japanese surrender, but the heavy troop movements of course will continue.

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### Loudspeakers in Railway Service

IT is some years since the first attempts were made to apply the loudspeaker to railway operation, to make announcements to the public at stations or convey information to the staff at marshalling yards and similar locations. Beginning with what may be called the electrical equivalent of the megaphone, the apparatus has been developed, and although at times the results still leave much to be desired, considerable progress has been made and the announcing is often sufficiently distinct and effective to prove helpful to passengers. Whether, as some think, a good system of indicator boards would be better in many cases may be a subject for debate, but there is little doubt that loudspeaker equipment has a place to fill in railway operation and that it is rendering very good service at many locations.

Success has not been achieved without considerable study and experiment, for the problem has been as much acoustic as electrical, indeed much more so, and the conditions obtaining at most stations have been such as to offer peculiar difficulties not encountered, at least not to the same degree, in most other places. Our stations were not designed to accommodate loudspeaker announcing and in some instances are particularly ill-adapted to the use of it. Conditions vary from place to place and in every instance, to get the best results, a careful investigation on the ground is indispensable before an efficient installation can be planned. The responsibility for the reliable working of these installations falls on the signal and telegraph engineer and if all we hear is to be believed, he has found plenty to worry him at times in connection with it.

The paper on the subject by Mr. W. J. Claridge, read before the Institution of Railway Signal Engineers on July 25, was therefore particularly welcome, as affording an opportunity for bringing together the principal features of the problem and

enabling it to be discussed. There is probably a good deal more research to be undertaken, but already great progress has been made in studying the difficulties associated with stations and yards and overcoming them, although probably it will never be possible to arrive at perfect results. One difficulty, which might be looked on as initial and fundamental, is the quality of the announcing itself. This was forcibly impressed on us quite recently, when we were thinking over some of the statements in the paper, by hearing an excellent announcement made on a platform, followed soon after by one, made by another man, which was almost unintelligible. At another station, a junction on a tube, a woman announcer—one of the platform staff—was trying to impress on the public that the train did not go to a certain place, but the effect she produced was the exact opposite, for it sounded as if she was saying it did go there. In fact, we know that some people got in the train in error. Although, therefore, we are willing to admit that loudspeakers are very useful on occasion, when operated with skill and discretion, we think there is something for the argument that in certain circumstances, such as suburban-train working, a good system of indicators is better, particularly if properly supplemented, as we consider it should be, by an adequate system of labelling the trains on the sides and providing them with clear and legible destination indicators in front. This is something that often is not done anything like as well as it might be. The requirements of different classes of traffic are not the same in these respects and the question of giving information to the public needs considering in a thoroughly comprehensive way, with the object of making use of all the available methods in an efficient manner.

This is an aspect of railway working that is worthy of much more attention than it has hitherto received, in spite of the increase in spoken announcements met with in recent years, and a problem which cannot be solved by loudspeakers alone. In some circumstances the loudspeakers can be positively distracting and serve to raise confusion unnecessarily, especially where it is possible, when sitting in a train, to overhear an announcement referring to another but which seems to refer to one's own and raises a doubt in the mind as to the accuracy of some instruction previously received on the journey. This is no uncommon experience at main-line junction stations. At the same time although the disadvantages of loudspeakers must be recognised, for that is the first step towards getting rid of them if possible, their real usefulness in many situations cannot be denied and much credit is due to those who have developed the apparatus used with them to its present level of perfection amidst considerable obstacles. Apart from the giving of information to the public the loudspeaker has been found very valuable in yards and when carrying out permanent way and signalling alterations, or in emergencies, such as when a derailment or other mishap has necessitated special local working being put into effect, as Mr. Claridge explained. His paper was a timely contribution to an important subject, one which is connected with other departments in the communication service on railways certain to command increased attention in the near future.

### High Boiler Pressure 80 Years Ago

AN interesting point in the development of the locomotive has arisen as a result of our recent publication of Mr. Charles E. Lee's volume *Narrow-Gauge Railways in North Wales*. In this he stated (page 108) that, when steam traction was introduced, for the first time in the world on a public railway of so narrow gauge as 2 ft., the first pair of locomotives, *The Princess* and *The Prince*, both built in 1863 by George England & Co. for the Festiniog Railway, had a boiler pressure of 200 lb. These engines, which cost about £900 each, went into service in June 1863, and were joined in the next year by two others that were generally similar. Correspondents have expressed interest in this statement and have queried the accuracy of so high a pressure at this period. Research on the part of the author, however, clearly confirms it, and the following précis of the evidence is not without interest.

In a paper read by Charles Easton Spooner, Engineer of the Festiniog Railway, at the Inventors Institute, and printed in the *Scientific Review*, 1865, he said of the first locomotive "The engine has two pairs of wheels coupled, of 2-ft. diameter; cylinders 8 in. in diameter, with a length of stroke of 12 in., and having a maximum working pressure of 200 lb. to the square inch." Spooner reprinted this paper in his book *Narrow Gauge Railways* in 1871, and then modified it in three specified respects, but left the pressure figure unchanged. Captain H. W. Tyler, the Board

of Trade Inspecting Officer, in a noteworthy paper to the Institution of Civil Engineers on April 11, 1865, said: "The maximum working pressure of the steam was 200 lb. to the sq. in." Moreover, this figure would appear to have been maintained for some years, for *Engineering* of October 4, 1867 (page 315) said definitely of the first four Festiniog engines: "The boiler, which is worked at the high pressure of 200 lb. per square inch, contains 140 brass tubes . . .".

Later references to the early use of locomotive traction on the Festiniog Railway, which attracted world-wide interest, leave little doubt that at any rate the first four engines were first worked at 200 lb. and that this was reduced about the end of 1867 (when Festiniog engines 5 and 6 were obtained) to 160 lb. *The Engineer* of September 24, 1869, said: "The working pressure is 160 lb., but 200 lb. have been carried." At the famous Tan-y-Bwlch meeting on February 12, 1870, Spooner said: "The four-wheel coupled tank engines are worked up to 160 lb. pressure." This was the meeting at which the results were discussed of the locomotive trials on that and the previous day. An Imperial Russian Commission was present, and there were representatives from India and many other parts of the world. The widespread adoption of the 2-ft. gauge in many parts of India (of which a noteworthy example is the Darjeeling-Himalayan Railway), in the U.S.A., and elsewhere, was but one of the fruits of Spooner's work. The extensive use of the metre gauge in India, and of the 3-ft. 6-in. gauge in New Zealand, also may be traced directly to Festiniog influence, and it is not too much to say that Spooner was directly responsible for the general recognition that public steam-operated railways on less-than-Stephenson gauge were a practical proposition. It seems not improbable that the pioneer use of a high working pressure made no inconsiderable contribution to the efficiency of the locomotives on this 2-ft. gauge line. Incidentally, the original two engines and No. 4—or what is left of them after much rebuilding—have themselves completed four-score years of service.

## A Glimpse into the Past

(From a correspondent)

So there is talk of the merging of the railways into a single system! The project has a serious, political aspect, and a lighter one, on which latter let us for a moment dwell. When one's thoughts go back to the old competitive times of forty years back, and more, what a mine of memories is opened, and how pleasant those old days look, through the rosy spectacles of time!

Have you the advantage of remembering the characteristics of the many systems that had their termini in London 40 years ago? Can you recall the Euston of those days, with its narrow little coaches, dark chocolate below and white above—a scheme that many would like to see restored—and its own peculiar smell, very different from the smell of Kings Cross? If you can, you will recall the comfortable dining-cars, with their queer, narrow entrances and their multitude of wheels and an atmosphere not very stimulating, and you will recall the magic of the phrase "First stop, Grewe!" The station will be linked in your memory, perhaps, with journeys to the North of England, even to Scotland. The dullest of the scenery had some interest and there was the excitement of ascending Shap, which seemed every time a fresh and remarkable feat, one knows not why, for it was done many times a day, and had been for years. Still more remarkable, if you went far enough, was the ascent of Beattock, for which you got at Carlisle a blue engine, and you stopped at Beattock itself to get another at the back to push.

Or maybe you more clearly recall old journeys from Kings Cross by the "Flying Scotchman," and the cathedrals of Peterboro', York, and Durham, the high-level bridge at Newcastle, the coast scenery beyond Berwick and, in later times, and most wonderful, the bridge over the Forth, that saved you the journey to Stirling.

Less adventurous, perhaps more dignified and not a whit less exalted socially, was a journey from Paddington, on the line even then famous for speed; you don't need to be very old to have ridden on the broad-gauge. Perhaps you lived in, or travelled to South Wales, and knew the days when one had to go through Chippenham, Bath, and Bristol to get to the Severn Tunnel, and you can recall the opening of the line through Badminton, that chopped off a great piece of the journey. Or perhaps you did not go through the tunnel, but through Gloucester.

Then there were journeys not quite breathless from Waterloo, most chaotic of stations, the terminus, let juniors note, of the London & South Western Railway, and giving access to the loveliest of English main lines, which one viewed from coaches painted, as to the upper parts, a strange, nameless, indescribable yellow-pink colour.

Journeys even less romantic there were, as from London Bridge to Margate, or to Herne Bay, or from Fenchurch Street to Southend, on the London, Tilbury & Southend Railway. Then honourable mention must be made of the Great Eastern Railway, and Liverpool Street, most crowded of stations, whence one travelled to the much-recommended East Coast resorts. There one saw engines of an attractive blue, on which the domes made themselves conspicuous by an apparent desire to get as close as possible to the chimney.

Each of these railways had its own characteristics, such as colour, station architecture, uniforms, coaches, and distinctly its own kind of passengers. For in those days you might roughly divide the country into industrial districts and otherwise, and your division would run across the map somewhere near to Rugby, to the south of which, except for railway workshops, and dockyards, you would find few engineering establishments. When one travelled from London to south, west, or east one met people of different occupations, mental tone, and social kind to those of the industrial Midlands and North. Particularly was this the case in the first class compartments, where, on the northern lines you were likely to find gentry who so tightly filled their best suits as to indicate a youth and early manhood spent in physical work, since when a sedentary life had induced an increase of weight. Shrewd, estimable people, no doubt, but the product of their habitat, whom you would not expect to meet on a journey to the unindustrial South. Rather you would there meet a quieter, more reserved, class, and who retained some of the old exclusive notions, whose high principles did not allow them to forget the existence of tenants, tradesmen, labourers and the like. As to their travelling, it was generally *en famille*, wives, daughters, and what not; they read serious papers, which were then not uncommon, and they did not affect the comparatively few smoking carriages that were then provided. Generally, they were known to and knew the station staff, and not uncommonly the guard could point out to you their country house, or the direction in which it lay. They were in many cases the inheritors of shares that their grandparents had taken up when the line was subscribed for, and they are extinct now; one imagines that they are not sorry, and that they would raise their eyebrows to anyone who should regret their extinction, holding not that they are unfitted for the times but that the times are such as they should not be asked to live in.

These and other reflections arise in the mind as one thinks of this proposed fusion, which threatens to add to the sameness of life. So much less individualism and variety, so much more drab uniformity, so much more of the community and so much less of the human being! *Venimus ad summum fortunae!* Soon, perhaps, the old systems will be as wholly forgotten as the canals, for information concerning them the student will need to resort to museums or libraries. By the final amalgamation the community may gain something, and may value it, if at all, the more highly for not knowing what has been lost in the acquisition of it. Let the old, out-of-date chuffs be glad of the knowledge and leave them in the harmless delusion that the old days were best.

It has often been urged against the old companies that when, before the traffic returned to the roads, they had matters all their own way, they abused their monopoly, which seems to be inconsistent with another argument put forward at the same time, namely, that they indulged in senseless, ruinous competition. A lethargic policy, a mulcting of the public and suicidal competition are surely incompatible. If there was competition it did not kill the railways and it was often a boon to the public. One is inclined to think that on the contrary it benefited both sides; in any case the managers who allowed their companies to carry it on were not all unintelligent, and probably the economics of railway working were better understood, or more easily ascertained, in the days of the smaller companies.

The old things cannot be recovered. Were it possible to restore the old railway systems and the old circumstances of life we still could not recover the old zest, for fashion has passed on and they are done with. Steam changed travel from a hazardous, physical ordeal to a comfortable, safe entertainment, for those who had eyes to see with; other inventions have created new tastes, and the old ones approach extinction.

August 17, 1945

## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

### Revolving Locomotive Boilers During Repairs

London Midland & Scottish Railway Company,  
Chief Mechanical & Electrical Engineer's Department,  
Crewe. July 23

TO THE EDITOR OF THE RAILWAY GAZETTE  
SIR.—In a letter commenting upon Mr. Jones' method for revolving locomotive boilers during repairs in a recent issue of your journal, mention is made of the use at Crewe of wire-rope slings for lowering boilers into locomotive frames during erection. I think it may be interesting to your readers to see a diagram or

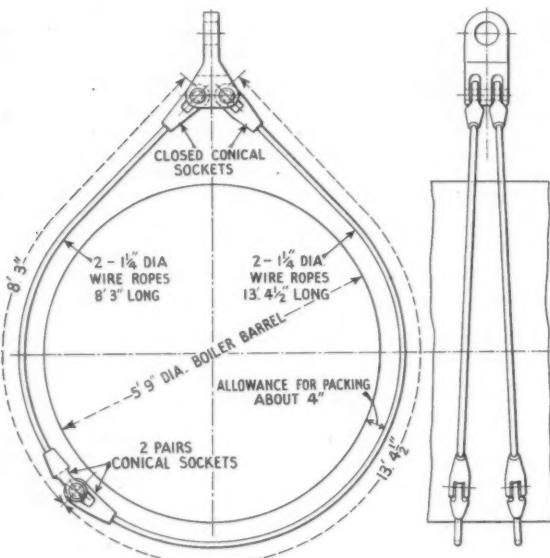


Diagram of the type of sling used at Crewe locomotive works for handling boilers during building and repair

sketch of the type of sling which we have used at Crewe for some considerable time for the purpose of handling boilers during building and repair. Chains had been used before the introduction of these slings, which have resulted in saving of much time and arduous manual labour. The slight spreading effect given by the twin wire rope ensures ease of balance with any design of boiler.

The very interesting method of revolving boilers described by Mr. Jones has been given careful consideration recently at Crewe, but for reasons of space available and shop layout their use would not facilitate the progress of repairs, even supposing double crab cranes were available. Many of the boilers requiring to be turned over during repairs have taper barrels, to which Mr. Jones' method does not seem appropriate. The best methods to use in any particular works depends so much on the layout and facilities available, and while Mr. Jones is to be congratulated on the solution of his own particular problems his method is by no means of universal application.

Yours faithfully,  
R. C. BOND

### Locomotive Streamlining

"Stream Cottage," Grimshill Road,  
Whitstable. August 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—There is a lot of truth in Mr. A. L. Jones's letter on streamlining in your July 27 issue, but I can't follow his reference to:—"The coupled wheels . . . as small as 5 ft. 9 in. corresponding to the conventional conception of speeds of 50 m.p.h."

If that really is a conventional conception, then Gresley's Pacifics should be limited to about 60 m.p.h. instead of 90-100 m.p.h. representing 25 per cent. above diameter speed, of which any well designed engine should be capable.

The New South Wales Railways, on which sprints of 70 m.p.h., 3 per cent. grades and curves down to 8 chains radius can be met

with in a single section, fixed on the 5 ft. 9 in. wheel as far back as 1914, and has had no difficulty in running up to 70 m.p.h., although some trouble—since overcome—was experienced with draught on long heavy grades.

Yours truly,  
L. IRVINE-BROWN

### Railway Organisation

Manchester. August 4

TO THE EDITOR OF THE RAILWAY GAZETTE  
SIR.—In your issue of July 20, "Another Correspondent" makes three points in attempting to show no improvement can be effected in railway internal organisation. The first, is that Sir Ralph Wedgwood in "speaking or writing" on Nationalisation of Railways is alleged to have referred to the railways as being soundly organised. Without the context it is difficult to know to which phase of organisation Sir Ralph was referring, but it would seem very probable he had in mind the various efficient organisations (R.C.H. and Railway Companies' Association, etc.) which exist to enable the separate concerns to function as one body when such action is necessary. Secondly, "Another Correspondent" stresses the grand work performed by the railways during the war. It is difficult to see what bearing this undoubtedly fact has on the question of the peacetime relationship between the Operating and Commercial Departments; like Sir Ralph's statement their war record proves the railways are capable of coping with a larger share of the nation's traffic than they had been carrying under the unequal conditions of competition before the war, and with their pre-war organisation.

The other point is the statement that there seems little difference in principle between the organisation of the four group companies. In this connection there is no need to go further than "Another Correspondent's" letter, for in the example he quotes, whereas the G.W.R. have separate officers, the S.R. combine the functions in the Traffic Manager. I suggest that the fundamental principles underlying the correct relationship between the Commercial and Operating Departments are unaffected by the type of traffic or the geographical area served, and I submit that so long as the internal organisation of a railway permits of a problem with a commercial background being viewed from a purely operating standpoint there is need for some adjustment if the railways are to take the part in normal conditions of trade and industry that their technical efficiency merits.

Yours faithfully,  
YOUR ORIGINAL CORRESPONDENT

### Consecutive-Number Stations

Sully, Glam. August 7.

TO THE EDITOR OF THE RAILWAY GAZETTE  
SIR.—May I offer the following towards Mr. F. W. Roberts's collection. He should have quite a good time filling in the blanks:

Onebarrow	...	...	...	...	...	Leicester.
Onehouse	...	...	...	...	...	Suffolk.
Wonastow	...	...	...	...	...	Monmouth.
Wonesh	...	...	...	...	...	Surrey.
Wonston	...	...	...	...	...	Hants.
Firsby	...	...	...	...	...	Lincoln.
8 Eight Ash Green	...	...	...	...	...	Essex.
8 Eighton Bank	...	...	...	...	...	Durham.
10 Ten Mile Bank	...	...	...	...	...	Norfolk.
12 Twelve Heads	...	...	...	...	...	Cornwall.
40 Forty Hill	...	...	...	...	...	Middlesex.
50 Five Crosses	...	...	...	...	...	Lincoln.
100 Hundred End	...	...	...	...	...	Cheshire.
600 Six Hundreds...	...	...	...	...	...	Lancs.
						Lincoln.

Yours faithfully,  
I. T. HATTON-EVANS

### Kings Cross Accident

6. Osborne Road, Chester-le-Street,  
Co. Durham, August 13

TO THE EDITOR OF THE RAILWAY GAZETTE  
SIR.—With reference to the Ministry of War Transport accident report on the Kings Cross accident in your August 10 issue, it appears that the train attendant realised what was happening but was unable to reach the brake van because of a locked door. Would it have served any useful purpose if he had pulled the communication chain, which could be done in any part of the train? I believe that pulling the chain causes a slight application of brake power, and I am wondering if this action might have caused that slight retardation of backward rolling which would have enabled the engine to regain control.

I do not say this is any criticism of the train attendant, but it may be worth while to have it established, whether, in case of a similar happening in the future, pulling the chain is of any use.

Yours faithfully,  
M. H. ROLLASON

## The Scrap Heap

SOCIALISTS NOW MIDDLE CLASS?

The Socialist Party now contains in Parliament 42 lawyers, 10 doctors, 19 company directors or business men, 40 ex-Service officers, 20 schoolmasters—numerous journalists, professors, lecturers, economists, civil servants, accountants. All told in the Socialist Parliamentary Party there are 208 of the professional classes compared with 148 industrial trades unionists.—From "The Daily Express."

### SLEEPING CARS

The letters on sleeping-cars, whatever the right and wrongs of the methods of reservation, which have lately been appearing in our correspondence columns, reveal the high importance attached to them by those who have to travel from one end of the small island comprising England and Scotland to the other. Necessities they may be to those whose work is urgent and involves much journeying, but to the normal run of human beings they remain one of those rare luxuries which keep their bloom and attraction throughout the seven ages of man.

O sleeping car, O sleeping car,  
The sweetest place on earth,

run the lines of an old music-comedy song and the words *wagon-lits* sound as seductively. There is, indeed, something about the sleeping car which magically blends the romances both of adventurous travel and of snug, intimate comfort. Outside, the station may be a wilderness of noise, half-

### 100 YEARS AGO

FROM THE RAILWAY TIMES, August 16, 1845.

**NORTH JAMAICA RAILWAY.**—CAPITAL £750,000, in 25,000 Shares of £30 each. DEPOSIT £1 per Share.

This Company was brought before the public about three months past, but the Provisional Directors considered it advisable to wait for further advice from Jamaica as to the engineering difficulties (if any), the probable cost of land, and other information relating to the line, all of which they have now received from their Agent and the Island Surveyor, which, with a detailed Prospectus, will be published in a few days. In the mean time, every information may be obtained on application at the temporary Offices of the Company, No. 2, Copthall Chambers, City.

August 12th, 1845.

## CRAZY CARTOON



"I say, don't look now, but there's a chap in the corner with a FIRST CLASS TICKET!"

[From "The Daily Sketch"]

lights and dim shadows, but within all is warm and private and there is the blissful expectation of waking up in a world infinitely remote from the clang and clamour of the London terminus. The mind, as well as the sky, sometimes changes, and the atmosphere of the sleeping car does much to help the transformation.—From a "Times" fourth leader."

## Shunting on the Bengal & Assam



On the Bogapani siding near Ledo, on the Bengal & Assam Railway, an 80-year old elephant performs the duties of a shunting engine. The above illustration is from our American contemporary, the "Railway Age"

How can you expect anyone to keep a secret you cannot keep yourself?

Asked for his name at Bromley Police Court recently, a man gave a reply which sounded like "Paddington." The Clerk: "Spelt the same way as Paddington Station?" "No, it's spelt Patrick Dunn."

Experiments are being made with railway lines to make railway travel much quieter. This will be a severe blow to the B.B.C. Effects Department.—From "Charivaria" in "Punch."

### CONSCIENCE MONEY

Posted in Redcar, a letter recently received by the L.N.E.R. Stationmaster at Saltburn said:

"I travelled a short distance without a ticket several times 25 years ago. Now my conscience prompts me to send to the railway company four times the amount. I think I have sent more than that to make sure I've paid in full."

The envelope contained £8 in notes.

During a flag day in aid of the Railway Benevolent Institution held on the L.N.E.R. system, £795 was collected by the staff in the Scottish area. That sum exceeded by £119 the previous highest figure for stations in Scotland, which was realised in 1942, the last occasion on which a similar collection was made on the L.N.E.R.

According to Transport House, there are 119 official trade union members in the new Parliament. Of these, 35 represent the National Mineworkers' Union, 12 the National Union of Railwaymen, 9 the Railway Clerks Association, 9 the National Union of General & Municipal Workers, and 7 the Distributive & Allied Workers.

### RAILWAY QUESTIONS AND ANSWERS

**Statement.**—If the railways were so efficiently operated under private ownership before the war, why did the Government have to take them over when war broke out?

**Answer.**—The railway companies were informed before the war that the control of the railways would be necessary in the event of a European war. Control was taken under the emergency legislation to secure the maintenance of supplies and services essential to the community in time of war. For this purpose the Railway Executive Committee was set up before the war, consisting of the chief executive officers of each of the four railway companies and the London Passenger Transport Board. At the outbreak of war the committee was appointed as the Minister's agent for the purpose of giving directions to the companies and, subject to such directions, the railways were instructed to carry on as usual. The railway companies have fully met all the requirements of the Government, as the Prime Minister has acknowledged. The high standard of all-round railway efficiency existing in 1939 has been the principal factor in enabling the railways to fulfil their gigantic transport obligations to all the Services, to industry and to the public throughout the war years, even when their tracks, rolling stock, and buildings were under continuing severe attack from the air.—From "Answers to Questions and Statements," issued by the British Main-Line Railway Companies, 22, Palace Chambers, London, S.W.1.

### "PARDIGATIONS"

All went well until I saw a ticket inspector pass along the corridor. I felt for my third class ticket, expecting that any minute I would be asked for the excess. My travelling companion noticed me fumbling for my ticket and tugged on my arm to desist. Then he addressed the ticket inspector with one word: "Pardigations." The ticket inspector saluted and said: "Thank you, sir. Sorry to disturb you." Later on in the journey, another inspector presented himself at the door of the compartment with a very polite request for "Tickets, please." My friend hardly looked up to exclaim: "Pardigations," to which the inspector responded with a bow and "Sorry, sir." He put the sliding door back in its place and went about his business. As we neared Manchester, I asked my companion: "What is all this business about pardigations?" "It's a secret," he said. "Well," said I, "they behaved to you as though you were a Director." "They think I am," he said. As we faced the final ticket collection at the barrier, my companion used the phrase again and passed through without challenge. As we walked over to the hotel, I said to him: "You would get away with murder." He laughed, and said: "It's easy. I haven't paid a fare on a railway for five years." "What is the meaning of pardigations?" I said. "I don't know," he replied: "I made it up."—From "One More Shake" by W. Buchanan-Taylor.

### TAILPIECE

(The first August of peace in Europe has brought heavy holiday traffic)

For British railways August brings anew its many problems—but its solace, too.

The crowds are dense—but none escaping from  
The deadly rocket and the flying bomb.

The engines groan—but will not meet to-day  
An unsuspected crater in the way.

The times are hard—but railmen every one  
Can earn the solace of a job well done.

E.C.

August 17, 1945

## OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

### SOUTH AFRICA

#### Improved Travel Conditions

In a statement made recently in Durban, Brigadier C. M. Hoffe, General Manager of the South African Railways Harbours Administration, said that train travel between Durban and Johannesburg would probably be revolutionised after the war. Serious consideration was being given to the question, and it was expected that big, roomy, air-conditioned saloons, with more than 80 comfortable aeroplane-type seats, would replace the present type of main line coach with its compartments and coupes.

Representatives of overseas firms were coming to South Africa to assist in evolving this comfortable type of coach, which would also assist in the segregation problem, as more and more non-Europeans were now travelling second class. For long distances involving night travel the present types would still be used. He thought there was no reason why this new type of coach should not be in service, at least experimentally, within a couple of years.

Unless some development along these lines was introduced the railways would not be able to cope with the increased number of passengers which was a natural outcome of the growing population. This new method of travel might also mean some modification in fares.

#### Railways & Harbours Board Report

The report of the Railways & Harbours Board for the year ended December 31, 1944, has been issued. During this period £2,850,450 was placed on permanent investment with the Public Debt Commission, bringing the total sum so invested as at December 31, 1944, to £60,341,975. Temporary investments during the same period were reduced by £173,000, leaving a total of £1,866,000.

The report states that revenue from passenger traffic amounted to £13,200,446 during the year, an increase of £1,116,776 compared with the figure for the previous year. The highest weekly passenger revenue in 1943 was £282,839, but this amount was surpassed on several occasions during 1944: the highest figure was for the week ended April 8, when the earnings amounted to £353,985.

During 1944, the Administration again called on to convey an exceptionally heavy volume of traffic by its road motor services, and with the assistance rendered by the military authorities, was able to meet urgent transport needs.

#### New Railway Construction

During the year representations from many sources were submitted to the Administration for the construction of new lines in various parts of the country. It is considered that the construction of new lines is not the only solution to the transport problem and that the requirements of any area where no railway facilities exist should first be dealt with by the provision of a road motor service, leaving for future consideration the laying of new lines when development proves this necessary.

#### Financial Review

The revenue earned by the railways, harbours, steamships, and airways during 1944 reached a record sum of £56,310,661. Of this amount, £55,682,480 was required to meet working expenditure, leaving a gross surplus of £628,181 for the year. After taking into account the net surplus of £671,998 brought forward, and allowing for

ordinary appropriations from revenue totaling £1,163,076 and a special appropriation of £196,393, the year 1944 closed with a net deficit of £59,290.

#### New Works at the Cape

It is stated by Brigadier C. M. Hoffe, General Manager of Railways, that the Administration plans to spend approximately £10,000,000 in the Cape Peninsula, during the next ten years, on new construction and development work. At the peak of this programme employment will be provided for at least 5,000 full-time workers.

The biggest item in the programme is £2,000,000 for the new airport at Belville. Other items are the new station (£900,000) new goods yard and lay-out (£732,000), Van Riebeek Hotel (£415,000), coach yard and catering stores (£150,000), electrification of Belville-Touws River line, including the Stellenbosch loop (£1,500,000), elimination of level crossings in the greater Cape Town area (£1,000,000), a new line from Kensington to Belville (£740,000), quadrupling the Cape Town-Maitland line (£130,000), and the Belville marshalling yard (£343,000).

Other items are the electrification of the Eerste River-Strand line (£80,000), housing for constructional staff (£200,000), and diversion of the Salt River canal (£60,000). Between £750,000 and £1,000,000 will be required for other works under consideration.

Brigadier Hoffe said the Administration was considering the extension of electrification of the main line beyond Touws River, as far as Beaufort West. No steam locomotives would be used in Cape Town's new railway station. No further important works were proposed for Cape Town's new harbour, apart from sheds. Plans for the railway hotel and the maritime station were now being drawn up.

## UNITED STATES

#### New Port on Lake Erie

It is announced that the New York Central System and the Baltimore & Ohio Railroad are joining forces to establish a joint railway terminus on Lake Erie, in the vicinity of the city of Toledo, at the mouth of the River Maumee, in place of their existing separate ports, which are up the river some miles from the lake front. The new port will include three electrically-operated coal-dumping machines, two over-loading machines, and machinery for mixing various grades of coal from different coal-fields, according to the qualities required by consignees. It is expected that by this combination the railways will expedite considerably the transhipment of coal from the railways to the lake steamers, and of ore in the reverse direction. Construction will begin as soon as the approval of the Interstate Commerce Commission has been obtained and the War Production Board has sanctioned the allocation of materials.

#### Union Rules in U.S.A.

The extraordinary difficulties inflicted on American railways by some of the inflexible union rules in the United States are well illustrated by a dispute on the Erie Railroad which threatens to result in a strike of passenger trainmen. The Brotherhood of Railway Trainmen claims that if trainmen operating suburban trains into and out of Jersey City are required to move their empty trains from the carriage sidings to the passenger station, or vice versa, this is a yard operation for which they are entitled to a day's pay in addition to their regular

pay. The operation in question takes from 5 to 15 min., and the claim takes no account of the fact that many of the crews concerned receive pay for 8 hr. but are only required to work about 5 hr. The same Brotherhood is demanding that when engines are being moved from an engine shed to a passenger station or marshalling yard, in charge of a man known as a "main-track hostler" with his helper, they shall be accompanied by a yard switchman to throw any switches that may have to be moved. In many cases, the company claim, it would be necessary to assign an extra man to travel with a hostler crew for the purpose of throwing a single switch, at a cost of \$8.54. Hitherto the movement of these switches has been regarded as the work of the hostler's helper, and the Brotherhood has recognised the fact.

#### Roller Bearings on the Missouri Pacific

A railway which has made outstanding progress in the application of roller bearings to its steam locomotives is the Missouri Pacific, and the results have been so successful in keeping the motive power out of the shops that the application of these bearings is likely to continue on an extensive scale. Nine engines in the "53D8" series have run between them 2,352,013 miles, as compared with 1,694,264 miles in a corresponding period before equipment with roller bearings; 25 engines of the "2100" series have travelled 8,217,271 miles, as against 4,372,934 miles in an equal period before receiving roller bearings; and 7 engines in the "5321" series similarly have put their mileage up from 1,848,030 to 5,334,798 miles in equal periods without and with roller bearing equipment. These increases, to which other modernisation improvements have contributed, have been in the ratio of 1.39 to 1, 1.88 to 1, and 2.89 to 1 respectively. Nineteen engines in the "6600" series and five in the "6400" series have shown a ratio of 1.47 to 1 since equipment with roller bearings. No. 6001, a 3-cylinder 4-8-2, which was equipped with the Franklin system of steam distribution, with poppet valves, at the same time as the roller bearings, has more than quintupled its average monthly mileage. This makes a total of 66 Missouri Pacific locomotives with roller bearing equipment.

## SWITZERLAND

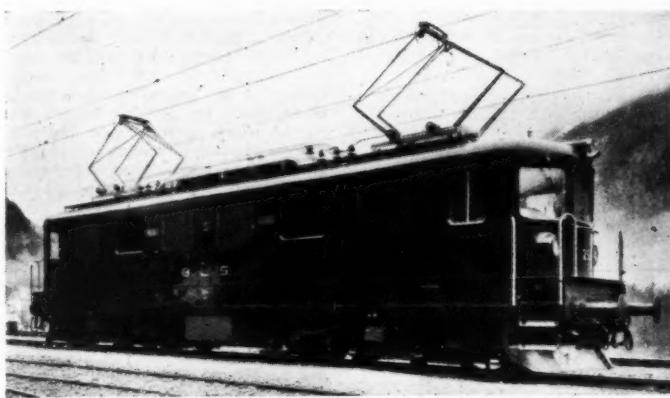
#### Passenger Rolling Stock

Some 155 new coaches, valued at fr. 23,200,000, have been added to the rolling stock of the Swiss Federal Railways during the war, despite the many difficulties encountered. At present, 70 more passenger coaches are under construction or envisaged in the 1945 budget, at a total value of fr. 12,300,000. The post-war programme contemplates the addition of a further 800 passenger coaches costing fr. 120,000,000.

The provision of special "tourist" coaches, as recently proposed by a member of the Government of the Canton of Zurich, is considered impracticable as the rolling stock cannot be adapted to the particular needs of certain classes. Another proposal for a common class coach also was rejected. It was stated that as long as the countries neighbouring on Switzerland maintain the three railway classes, difficulties and inconveniences would arise with the operation of transit services comprising first and second class vehicles. In addition, the Swiss private railways would not agree to such a measure relying, as they largely do, on the additional receipts provided by first and second class travellers.

**New Electric Locomotive for Lötschberg Railway**

*A one-hour rating of 4,000 h.p., equivalent to 1,000 h.p. on axle,  
is provided on a weight of just under 80 tons*



The first of two express locomotives ordered by the Bern-Lötschberg-Simplon Railway nearly two years ago was delivered last December, and has been placed in service on the line between Berne and Brigue. Only the Thun-Brigue section belongs to the Bern-Lötschberg-Simplon Railway; the Berne-Thun section forms part of the Swiss Federal Railways system. The new locomotive represents a departure from the former practice, which favoured heavy types. The eight 1-Co+Co-1

locomotives which the Bern-Lötschberg-Simplon Railway placed in service between 1926 and 1942 weigh 142 tonnes (140 tons) each. They were designed to negotiate the difficult gradients of up to 1 in 40 on the Spiez-Brigue section at express speeds with loads of approximately 600 tonnes; but in fact loads over this line average only some 250 to 350 tonnes, and it was considered that normal requirements could be met by locomotives of less weight.

The new locomotive weighs 80 tonnes

(78½ tons), all of which is available for adhesion, as the wheel arrangement is Bo + Bo. Light metals have been used extensively in its construction.

The mechanical portion of the locomotive has been supplied by the Swiss Locomotive & Machine Works, Winterthur, and Brown Boveri & Company was responsible for the electrical equipment.

The one-hour rating is 4,000 h.p. Each of the two four-wheel bogies is fitted with two 1,000-h.p. driving motors. The drive from motors to wheels is of the spring-disc type evolved by Brown Boveri & Company. The two bogies have been fitted with special devices for the elimination of excessive oscillation on straight sections, and to assist in the easy negotiation of curves. The frame and body, as well as the bogies, are of all-welded construction.

The operating voltage is controlled by tappings on the high-tension winding, and the traction control consists of 28 notches; the whole apparatus weighs only 770 lb.

The principal dimensions of the locomotive, which is classed officially as "AC 4/4," are:

Gauge	...	...	...	...	4 ft. 8½ in.
Length over buffers	...	...	...	...	51 ft. 2 in.
Wheelbase	...	...	...	...	37 ft. 8½ in.
Wheelbase of bogie	...	...	...	...	10 ft. 8 in.
Height, top of rail to top of roof	...	...	...	...	14 ft. 9 in.

The maximum speed of the locomotive on level track is reported to be 125 km.p.h. (77.5 m.p.h.). It can haul a load of 650 tonnes at 90 km.p.h. (56 m.p.h.) over gradients of 1 in 100, and at 75 km.p.h. (46.5 m.p.h.) over gradients of 1 in 66. It is reported also to be capable of hauling 400 tonnes at 75 km.p.h. over gradients of 1 in 40. Normally, however, the admissible loads are 10 per cent. less than those mentioned above.

**CENTRAL RAILWAY OF BRAZIL FURTHER ELECTRIFICATION.**—Steps are being taken by the Central Railway of Brazil to extend the plan of electrification beyond Barra do Pirahy to Volta Redonda.

Power will be supplied from Deodoro up to Scheid, and from Volta Redonda to Barra do Pirahy with as many sub-stations as may be necessary. Volta Redonda is about 90 miles by rail from Rio de Janeiro. (See also editorial note, page 158).

**SWISS RAILWAY ELECTRIFICATION.**—Electric traction was introduced on the 16-mile Koblenz-Eglisau section of the standard - gauge Stein - Säckingen - Winterthur line on July 2, and on the remaining stretch, Bielach-Winterthur (10½ miles) on July 14. The intervening section, Eglisau-Bielach (3½ miles), which forms part of the Zürich-Schaffhouse main line, has been electrified for some time but Koblenz-Winterthur trains are steam-worked over it for the time being. The western section of the line, Koblenz-Stein-Säckingen (where it joins the main line for Basle) is already electrified (16½ miles). The 1946/1947 electrification scheme envisages the conversion, by the dates mentioned, of the following lines:—

Romanshorn—Kreuzlingen, 12½ miles, by May, 1946  
Etzwilen—Oberwinterthur, 17½ miles, by December, 1946

Winterthur—Wald, by 1947  
Oberglat—Niederweningen, by 1947  
Etzingen—Singen, 8½ miles, probably by 1947

The electrification credits for the Romanshorn-Kreuzlingen conversion have been approved. The electrification of the line

leading to Singen (Germany) will be governed by the course of events in Germany as the work will have to be carried out in collaboration with the German Reichsbahn for the stretch located between Ramsau, the Swiss frontier station, and Singen, a distance of 5 miles.

**SWEDISH RAILWAY ELECTRIFICATION.**—Speaking recently at the Hernoësand Industrial Fair, Herr G. O U. Dahlbeck, General Manager of the Swedish State Railways, said, according to a Reuters report, that not less than 86 per cent. of the traffic on the Swedish State Railways was now operated electrically, although less than half the total mileage of the whole system had been electrified. Herr Dahlbeck also referred to the fact that the large scale electrification of Swedish railways had resulted in the saving, during the six years of war, of 7,000,000 metric tons of coal (as reported in our March 30 issue, page 321). This saving represented a saving of £33,000,000 on coal and other fuel. After deduction of £6,500,000 paid as interest on the capital invested in the electrified railways, and a further £5,450,000, the price of the electric power consumed, the net saving amounted to £21,250,000, a sum equal to the total cost of the electrification work. In fact, savings had been even greater as fewer men were needed for the running of the railways and the cost of repairs was lower. By the summer of 1947 the State Railways would be able to offer passengers electric rail cars of a modern, light type, with a speed of 80 m.p.h. More modern sleeping cars would be introduced

and old cars would be modernised. Double tracks would be installed on additional lines, with particular attention to the routes from Stockholm to Gothenburg and Malmö, which still had 287 miles of single-track line.

**SOROCABANA RAILWAY ELECTRIFICATION DECREE.**—A Decree has been signed by the Federal Governor of the State of San Paulo, Brazil, authorising the Sorocabana Railway to proceed with the electrification of its lines and to build whatever power stations may be necessary. Local works in that connection, and the importing of material, may be undertaken without invitation of tenders if the prices prevailing in the contract of 1940 for the electrification of the section between San Paulo and Santo Antonio are maintained. The General Manager of the railway is empowered to sign all contracts resulting from the Decree, and the Secretary of Finance is authorised to endorse all promissory notes issued up to a total of Cr. \$250,000,000, or their equivalent in foreign currency, for instalments on all purchases contracted for payment at a rate of interest not exceeding 4½ per cent. a year. A proposal also is to be submitted by the Federal Governor to the Administrative Council for the granting of a further credit amounting to Cr. \$123,000,000 to the Sorocabana Railway, to be used in the purchase of rolling stock and equipment necessary for the efficient working of the railway; it will be financed by the Bank of Brazil. The operation will be guaranteed by a mortgage on the material imported and by the product of a fund resulting from a surcharge of 10 per cent. on all freights.

August 17, 1945

## Accommodation in Coaching Stock

### Suggestions for the seating and door arrangements for passenger traffic

**A**MONG the many factors which influence the efficient operation of crowded suburban lines, whether underground or on the surface, the carrying capacity of the coaches and their loading and unloading speeds must be considered carefully, apart from all other matters, such as speed of trains, acceleration, braking distances, signals, spacing of stations, grades, curves, and so on. The carrying capacity of each coach comprises the number of persons seated and standing. It is clear that a person seated needs more floor space than a standing passenger. When the author investigated this question many years ago, the seating arrangement still followed the

and  $\beta$  not more, even less, than 3 per 10 sq. ft. As we obtain from the above equations

$$x = \frac{A+B}{\alpha + \frac{B}{\beta}}$$

and

$$y = \frac{\alpha(x-\beta)}{-\beta(x-\alpha)}$$

we can draw a graph showing the relation of the possible number of passengers per floor space unit (sq. ft.) to the ratio of standing to seated persons (Fig. 1). The curve is a hyperbola with one asymptote

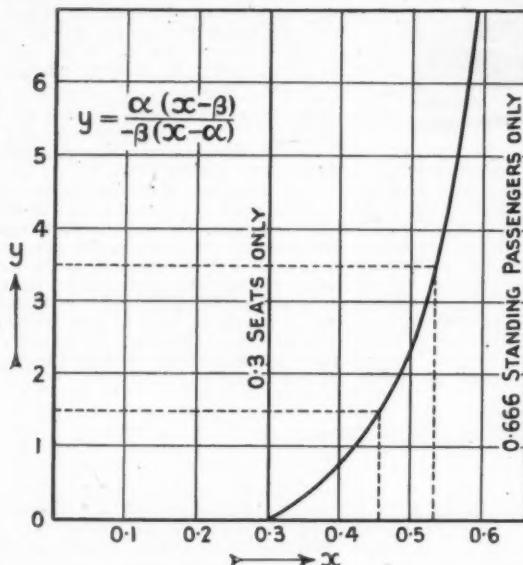


Fig. 1—Graph showing relation of passenger per floor space unit to the standing-seated ratio

old lines; seats were provided either transversely or lengthwise, leaving too little standing room for rush hour traffic, or too much, without regard to the comfort of the ordinary passenger, so that many suburban coaches did not use floor space to the best advantage. A simple formula, however, enables us to solve the problem of the right distribution and the most efficient seating arrangement. If we let the floor space of a coach be referred to as  $F$ , the number of standing passengers as  $A$ , and the number of seated passengers as  $B$ , we find the relation of standing to seated persons

$$y = \frac{A}{B}$$

and the specific load

$$x = \frac{A+B}{F}$$

The general equation for the floor space  $F$  can be written

$$F = \frac{A}{\alpha} + \frac{B}{\beta}$$

where  $\alpha$  is the number of standing persons,  $\beta$  the number of seated passengers, per floor space unit. Now experience shows that  $\alpha$  is equal to 2 persons per 3 sq. ft.

at 0.666, as the maximum number of persons is reached if all passengers are standing. It is further obvious that not much is gained by providing standing room for more than 3.5 times the number of seated persons as the increase in the capacity of the coach is hardly noticeable, or, on the other hand, if less than 1.5 times the number of seated persons shall have standing room, in which case the whole floor space could be arranged for seating as the difference is not worth while considering. Instead we can pay due regard to passenger comfort. This leads immediately to the second question, the number of travellers per unit car length in relation to the width of the coach and the distribution of seats and standing room. Fig. 2 shows the specific carrying capacity ( $\eta$ ) for different widths ( $\xi$ ) and load factors ( $p$ ) from  $p_1 = 3/10$ , i.e., no standing room, to  $p_7 = 2/3$ , i.e., no seats. As no inside width of more than 10 ft. need be considered, the maximum number of passengers per foot is about 6.66 or 20 passengers per 1 yd. train length. 30 trains per hour of 10 cars of 20 yds. length will carry, theoretically, a maximum of 120,000 travellers per hour, all standing, though actually 100,000 will hardly ever be reached.

The number of trains per hour is limited by the distance between stations and the time necessary for clearing a station. Notwithstanding the possibility of running trains at a rather high speed with short intervals along any line if block distances and brakes are properly arranged, the schedule will always be dependent on the length of time a train occupies a station. It is, of course, assumed that normally only one platform has to be considered, so that the next train has to wait until the previous train has started pulling out of the station. Although the interval may be shortened by a very great starting acceleration of the train and by providing all modern station appliances, the loading and unloading speed, dependent on the design of the coaches, will be decisive.

Some data may be directly read from Figs. 1 and 2. City and suburban railways with a narrow profile and coaches not wider than 7½ ft. should have their seats lengthwise without any transverse seats if they have to consider rush hour traffic. Coaches with greater width should have a combination of transverse and lengthwise

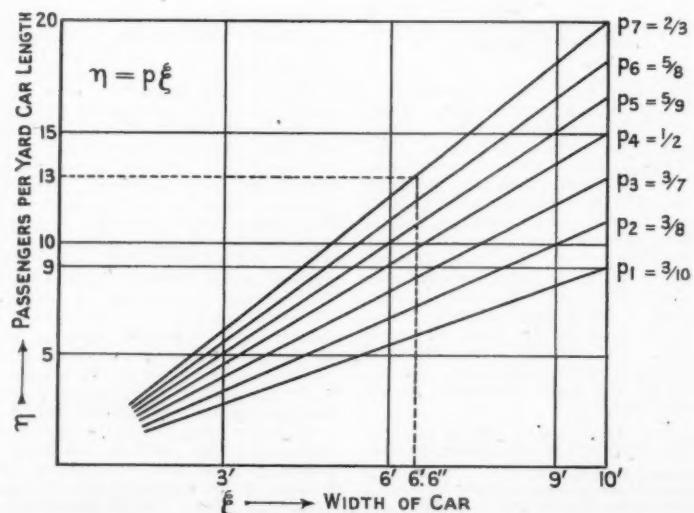


Fig. 2—Diagram showing specific carrying capacity for different car width and load factors

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seats. Rapid movement of large numbers of passengers is only possible if bottlenecks are avoided by an appropriate seat, compartment, and door arrangement. That these questions are still highly topical is shown by the interest with which the new first class coach of the L.N.E.R. was received.

Some twenty years ago the author of this article published the plan of a coach

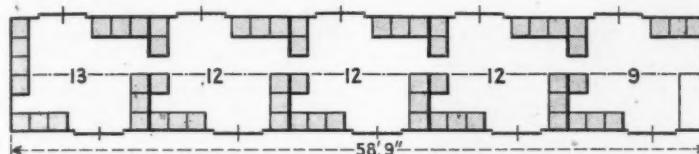


Fig. 3—Layout of coach with doors arranged diagonally

based on the above considerations. Fig. 3 is a diagrammatic view of this coach, which for the first time showed an arrangement of seats round an approximately square standing space. The suggested coach length was a little less than 60 ft., the width not quite 10 ft. Five sections were proposed with 62 seats altogether. From the equation

$$F = \frac{A}{\alpha} + \frac{B}{\beta}$$

and

$$\alpha = 2/3, \beta = 3/10$$

$$\text{follows } A = \left( F - \frac{10B}{3} \right) \frac{2}{3}$$

$$\text{and as } B = 62, F = 550 \text{ sq. ft.}$$

$$A = (550 - 207) \frac{2}{3} = 229$$

This is the maximum number of standing persons. Originally the number of standing passengers per sq. ft. was estimated at less than 2 per 3 sq. ft. Yet the latter figure is often found in American calculations, and it compares well with maximum floor loads in buildings (100 lb./sq. ft.). The value 3.7 for the ratio of standing to seated passengers is almost too high.

To achieve the desired result of quick loading and unloading the flow of passengers must not be interrupted. At the same time doors should be placed as to be reached easily from all parts of the coach without forcing passengers to squeeze through narrow gangways between rows of seats. It is further advantageous to lead passengers away from the door to the middle of the standing room if all seats are occupied.

appeared in the Electric Railway Journal (Vol. 75, No. 6), under the heading "Loading Speed a Major Factor in Design of New York Subway Cars," the equalising of the door zones was especially stressed. The use of four instead of five sections has the advantage of simplifying the structural design of the main girders. In the author's first proposal there was an interruption just in the cross-section where the highest strain occurs. But all the other measurements, including the distribution of passengers with 58 seated and 220 standing, and the door width, show a remarkable likeness to the earlier design. The theoretical considerations seem to have been justified by practical experience.

Some time later the Central Railway of Brazil adopted a similar design for electric suburban coaches (built by the Metropolitan-Cammell Carriage & Wagon Co., Ltd.) with three sections only, but having the same lay-out with wide doors serving equal floor areas and easily accessible from all parts of the coach. The number of seats differs a little but is similar. The figure given for the number of standing passengers is rather conservative though in the Brazilian climate too much overcrowding may be impossible. The third-class trailer carries 72 seated and 148 standing persons. Up to now nothing similar seems

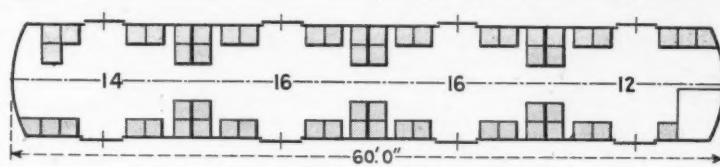


Fig. 4—Plan of four-section coach with opposite door openings

diagonal arrangement of doors. The coach length, as shown by Fig. 4 is 60 ft., the inside width 9 ft. 9 in. Four sections were chosen instead of the proposed five sections, with 12 to 16 seats and standing room in the oblong area between the seats of each section. The door width is 3 ft. 10 in. as against 3 ft. 7 in. In the report which

to have materialised in this country. It is essential that passengers are so guided that they do not form crowds at bottlenecks but the existing coach lay-out induces most travellers to crowd the entrance. It may be now just the right time to consider the section system with fully equalised door zones.

## Swedish Rotary Snowplough

*A powerful machine that saw intensive service last winter*

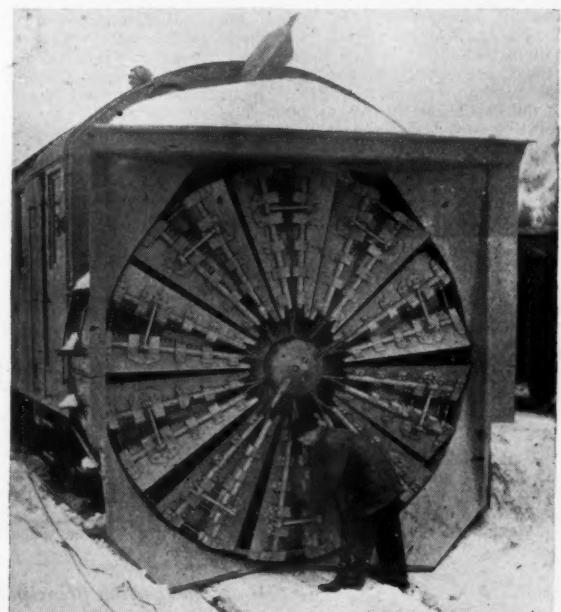
FOR many years, snow has caused considerable trouble on Swedish railways, even as far south as the province of Skane, where trains frequently have to be dug out of snowdrifts in the flat countryside. With the passage of time, the Swedish railways have achieved a large measure of success in tackling the problem by mechanical means.

Some time ago the Swedish State Railways put into service two powerful rotary snowploughs in the southern part of the country. In each unit, steam is supplied by a locomotive-type boiler, fitted with a superheater, to a 700-h.p. twin-cylinder engine that drives the rotary plough. The plough is rotated at 180 r.p.m. and can be operated in either direction, so that snow can be thrown as required on to the more convenient side of the track.

The vehicle carrying the plough at the forward end, runs on two 6-wheeled bogies, and is provided with a 6-wheeled tender. All axles are equipped with S.K.F. roller bearings. The weight of the unit is approximately 118 tons and it

is 60 ft. long. In operation the snowplough unit is pushed forward into the drift by one or more locomotives according to local conditions.

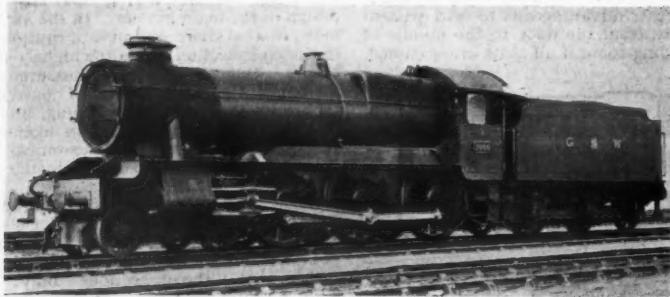
*A rotary snow plough in use on the Swedish State Railways*



August 17, 1945

## New G.W.R. 4-6-0 Locomotive, "1000" Class

*Important modifications to engine and tender in an otherwise characteristic Swindon design*



WE have received from the Great Western Railway some photographs, an outline drawing, forming also the weight diagram, and a brief announcement (which also includes the leading dimensions) of the first new class of locomotive for which Mr. Hawksworth is entirely responsible. Many rumours were in circulation about the new design, which was worked out in secrecy at Swindon. It is now evident that the "Modified Hall" class (No. 6959 and others) was the starting-point for the new type, the first engine of which, No. 1000, has recently been completed.

Taken together, the various detail modifications to established Swindon practice form a noteworthy departure from what has been customary ever since the days of Mr. Churchward, and it may well be that the various innovations will spread to several other classes. The "trial" effort, in the "Modified Halls," was of considerable interest, as it involved the first major modification made for many years to the long-established "Swindon No. 1" boiler.

Dealing with the boiler first, as containing the greatest number of changes, the most striking new feature is the raising of the working pressure to 280 lb. per sq. in., a new record for the Great Western, which led the way in increased boiler pressures in this country over forty years ago. The number of superheater flues—21—is the same as in the "Modified Hall" class, and tube diameter of the elements is the same; but the superheating surface differs considerably, being reduced from 314·6 sq. ft. in No. 6959 to 265 sq. ft. in No. 1,000. The evaporative surface is again different, but

in this case the difference is trifling; it is perhaps significant that in providing for a total of 1,714 sq. ft. in No. 1000 (as against 1,737·5 sq. ft. in No. 6959) the number of small tubes was raised from 145 to 198; the diameter, however, simultaneously was reduced from 2 in. to 1½ in. The firebox heating surface is about 14 sq. ft. greater in the case of No. 1000. It is stated that the new superheater gives a higher degree of superheat than preceding patterns.

Great interest attaches to the appearance of the double blast pipe and chimney on the Great Western. The company states, however, that it has been fitted to the first engine of the series, for experimental purposes. Another most important boiler feature is the hopper type of ashpan, which has been provided to facilitate quick removal of the ashes at depots.

The main frames are of steel plate throughout, and the cylinders are cast separately; a fabricated steel saddle plate is fitted between the front ends of the frames to give support to the smokebox and front end of the boiler. The general appearance of the front end of the new engine resembles the "Modified Hall" in the downward slope of the framing from the front of the smokebox to the buffer bar, and in the use of a plate-frame bogie. The latter has a fabricated centre and independent springing. The driving wheels are 6 ft. 3 in. dia.

The tender is a completely new pattern, and is far less like a traditional Swindon product than is the engine. The aim of the new design was a simpler type of con-

struction, and the tanks are built up entirely by welding. The capacity is 7 tons of coal and 4,000 gal. of water. In the result, a highly satisfactory ratio of empty to loaded weights—22 tons 14 cwt. as against 49 tons—has been achieved.

The general appearance and finish of the engine as shown in the illustrations is very attractive. A continuous splasher marks a noticeable difference from the "Halls," but the most prominent new feature, of course, is the double chimney, which has been very handsomely fashioned. The absence of a name will be a matter for regret to the many admirers of Great Western practice, but this is offset to some extent by the excellent transfer of the company's coat of arms which adorns the tender.

The performance of the new engine will be a matter of considerable interest. The duties for which it is to be used have not yet been officially announced.

Below are the leading dimensions of No. 1000:—

Cylinders (2), dia.	...	...	18½ in.
" stroke	...	...	30 in.
Piston valves, dia.	...	...	10 in.
Wheels, coupled, dia.	...	...	6 ft. 3 in.
" bogie	...	...	3 ft. 0 in.
Wheel-base, coupled	...	...	14 ft. 9 in.
" total engine	...	...	27 ft. 3 in.
total engine and tender	...	...	53 ft. 6½ in.
Boiler, dia., max. outside	...	...	5 ft. 8½ in.
" dia. min.	...	...	5 ft. 0 in.
" length of barrel	...	...	12 ft. 7½ in.
" working pressure	...	...	280 lb. per sq. in.
" centre line from rail	...	...	8 ft. 11 in.
Firebox : inside, top	...	8 ft. 7½ in. x 4 ft. 9½ in.	
" bottom	...	8 ft. 6 in. x 3 ft. 3½ in.	
" outside, top	...	9 ft. 9 in. x 5 ft. 10½ in.	
" bottom	...	9 ft. 3 in. x 4 ft. 0 in.	
" height, front	...	6 ft. 8½ in.	
" back	...	5 ft. 1½ in.	
Heating surfaces	...		
Fire tubes (21 5½-in. flues and 198 1½-in. tubes, 13 ft. 0 in. long)	...	1,545 sq. ft.	
Firebox	...	...	169 sq. ft.
Total evaporative surface	...	1,714 sq. ft.	
Superheater (84 tubes 1½ in. dia., 12 ft. 0 in. long)	...	265 sq. ft.	
Grate area	...	28·84 sq. ft.	
Weight in working order	...		
Engine	...	76 tons 17 cwt.	
Tender	...	49 tons 0 cwt.	
Total weight of engine and tender in working order	...	125 tons 17 cwt.	
Traction effort at 85 per cent. boiler pressure	...	32,580 lb.	
Water capacity of tender	...	4,000 gal.	
Coal	...	7 tons	

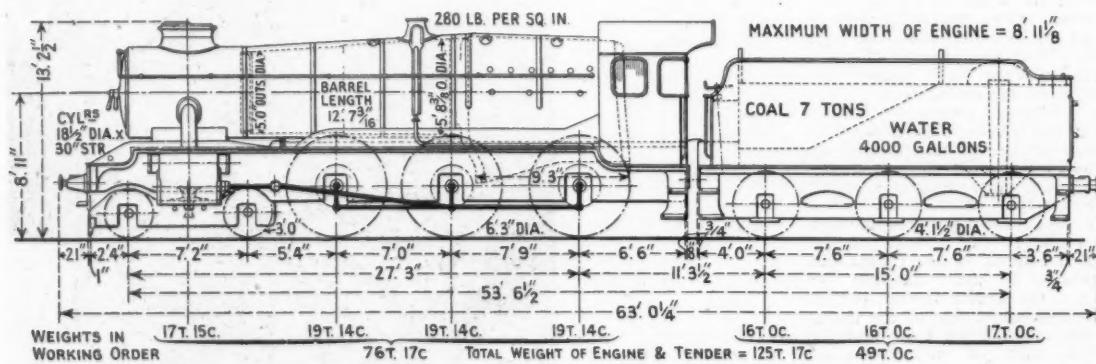
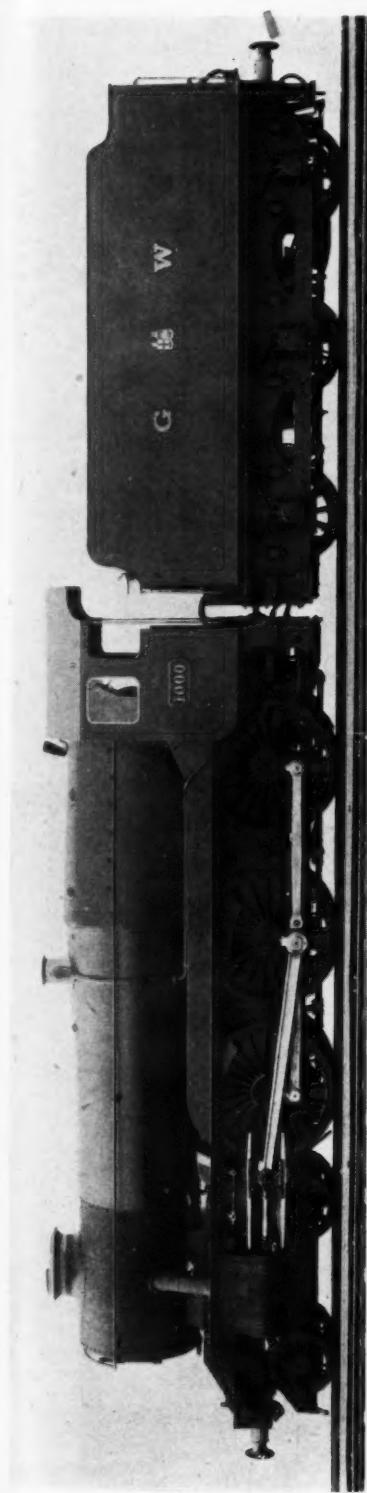
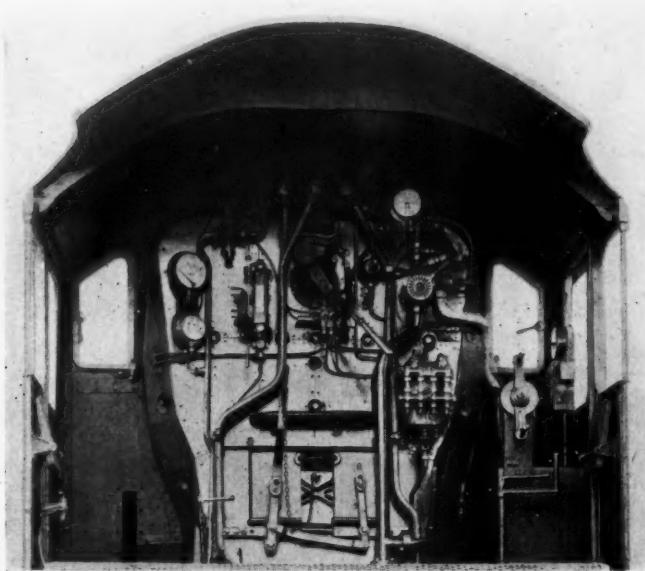


Diagram showing principal dimensions and weights

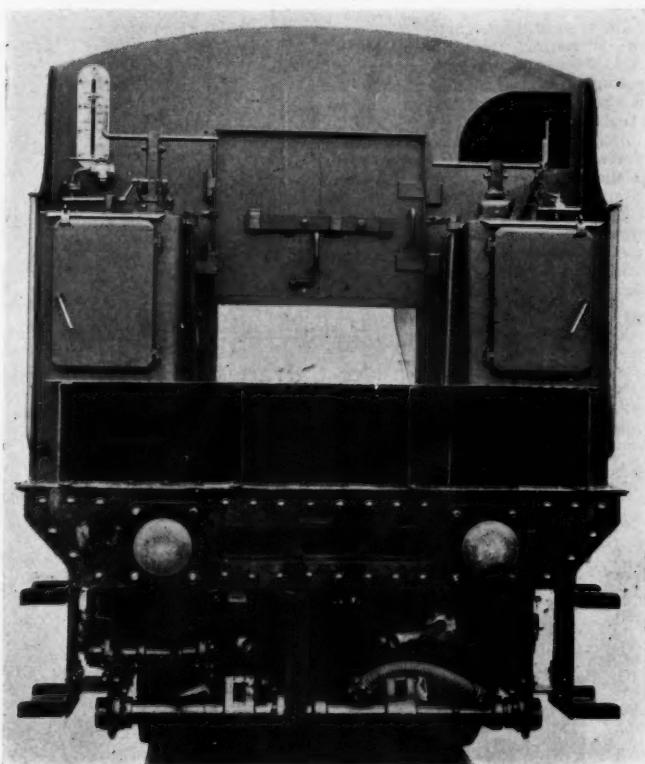
New G.W.R. 4-6-0 Locomotive, "1000" Class



*Side view of new Great Western Railway locomotive, "1000" class, and tender*



*General view of cab arrangement*

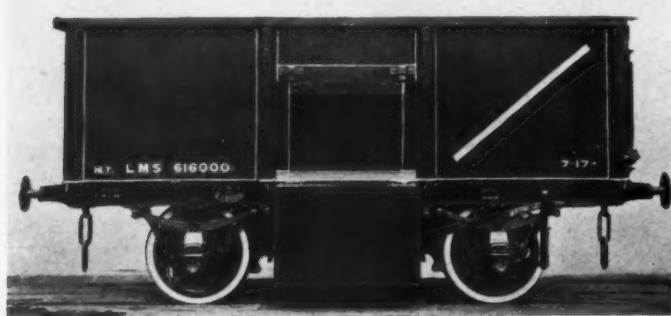


*Front view of tender*

August 17, 1945

### All-Steel L.M.S.R. Mineral Wagon

*An improved type of 16-ton wagon for mineral traffic*



THE first of a series of all-steel mineral wagons, designed by Mr. C. E. Fairburn, Chief Mechanical & Electrical Engineer, L.M.S.R., has been constructed recently at the L.M.S.R. Carriage & Wagon Works at Derby. An order has been placed for the building of 2,000 of these wagons by the end of 1946.

The wagon has a capacity of 647 cu. ft. and is capable of carrying 16 tons. The body is welded and has doors at one end and both sides. There are also two bottom doors. The wagon is no longer than the standard R.C.H. mineral wagon, but increased capacity is obtained from the reduced thickness (as compared with a timber-constructed wagon) of sides, ends and floor, and by slightly increasing the depth of the body. Steel pressings will be used for the side and end stanchions, the side and end doors, and the channel section over the end doors of wagons comprising the remainder of the order. The end door is reinforced by a special pressing on the inside to prevent deformation by buffering stocks.

It should be noted that the prototype wagon illustrated has fabricated side and end doors. The top edge of the body is stiffened by a steel angle to prevent distortion of the body during tipping operations.

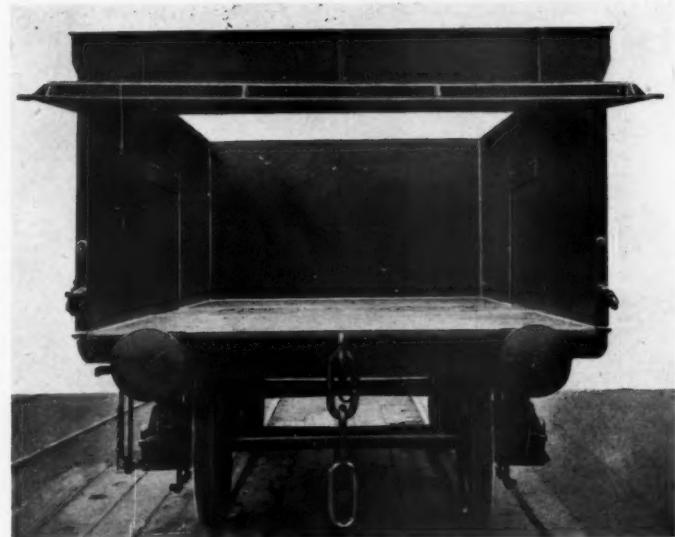
The underframe is of the standard R.C.H.

riveted pattern, with the addition of rolled-steel T-section brackets which provide support and means of attachment for the body. The wagon is designed to allow the body and the underframe to be constructed separately; the body is secured to the underframe by welding. The body is fabricated in various sub-assembly jigs and completed in a revolving jig.

The leading dimensions of the wagon are:

Length over buffers	...	...	19 ft. 6 in.
Length over headstocks	...	...	16 ft. 6 in.
Overall width of body	...	...	8 ft. 7 in.
Overall height	...	...	8 ft. 9 in.
Journals	...	...	9 in. x 4½ in.
Estimated tare	...	...	7 tons 17 cwt.

The wagon has been subjected to side- and end-tipping and shunting tests with satisfactory results. The general appearance of these wagons, and side- and end-door arrangement are shown in the accompanying illustrations.



L.M.S.R. new 16-ton mineral wagon with end door raised

### Beyer-Garratt Operation on the Gold Coast Railway



One of the heavy-freight war-standard Beyer-Garratt locomotives hauling a 1,100-ton manganese train on the main line of the Gold Coast Railway. An illustrated description of these locomotives was published in our June 11, 1943, issue

## RAILWAY NEWS SECTION

## PERSONAL

Sir John Rowland on July 31 handed over to Brigadier J. C. B. Wakeford as Chief Railway Commissioner, Burma.

Mr. W. G. Hills, General Manager of the Ceylon Government Railway, proceeds on leave next October, preparatory to retirement. Mr. J. E. S. Bodger, Deputy General Manager, is to act as General Manager.

Mr. John E. Sandham has been appointed Engineer-in-Chief of the Buenos Ayres Great Southern and Buenos Ayres Western Railways, on the retirement of Mr. F. L. Creswell.

Mr. C. E. Spurgeon, Deputy General Manager of the Egyptian State Railways, is to succeed Mr. R. E. Thomas as Chief Inspecting Engineer to the Egyptian Government in London as from next December.

Sir Edward Bentall, War Transport Member of the Viceroy's Executive Council, has left India for Great Britain on leave.

The President of Brazil has made Mr. George Macaulay Booth, Chairman of the San Paulo (Brazilian) Railway Co. Ltd., an Official of the National Order of the Southern Cross.

Sir Harold Hartley (a Vice-President of the L.M.S.R.) and Sir William Stanier (Adviser to the L.M.S.R. on Mechanical Engineering, and formerly Chief Mechanical Engineer of that railway) are members of the board of governors of the College of Aeronautics for post-graduate instruction in aeronautical science and engineering, which is being created in accordance with the recommendations of the committee presided over by Sir Roy Fedden, whose report was issued last year.

**L.N.E.R. APPOINTMENTS**  
Mr. L. E. Marr, who, in his absence with H.M. Forces, was appointed Passenger Manager (Scottish Area), has now returned to the company's service and taken up the duties of that position. In consequence, Mr. M. A. Cameron, who has been filling the post in an acting capacity during Mr. Marr's absence, has returned to Liverpool Street to take up the appointment of Assistant Passenger Manager (Southern Area).

Mr. K. A. Kindon, who has been Acting Assistant to Passenger Manager (Southern Area), will return shortly to his permanent post as Assistant District Goods & Passenger Manager, Nottingham.

Mr. A. A. Snowball, who has been acting as Assistant District Goods & Passenger Manager, Nottingham, while Mr. Kindon has been employed at Liverpool Street, has been appointed Acting Assistant District Passenger Manager, Newcastle.

Mr. C. R. Wade, Head of the Ancillary Services Section, Chief General Manager's Office, has been appointed Assistant District Passenger Manager (London).

Mr. G. C. Gold, Locomotive Works Manager, Darlington, to be Mechanical Engineer, Gorton.

Mr. Percival William Pine, Solicitor to the Great Western Railway Company since August 25, 1941, who, as recorded in our August 3 issue, is retiring on October 13, was articled to Warren & Allen, Solicitors, of Nottingham, in April, 1897, and served his articles with them and Field, Roscoe & Co. of London. Through the courtesy of Sir Sam Fay, General Manager of the Great Central Railway, he obtained three years' valuable experience in the office of the late Mr. George Parsons, District Goods Mana-

## INDIAN RAILWAY STAFF CHANGES

Mr. H. Hinton Cooper, C.I.E., Chief Mechanical Engineer, N.W.R., has been appointed to officiate as General Manager, in place of Mr. W. A. Anderson, granted leave.

Mr. H. M. Walker, Superintendent, Mechanical Workshops, N.W.R., on return from leave, has been appointed to officiate as Chief Mechanical Engineer.

Mr. N. C. Watney, Deputy Chief Mechanical Engineer, N.W.R., has been appointed to officiate as Superintendent, Mechanical Workshops, throughout that system.

Mr. A. P. Quarrell, who was appointed a Director of British Oil Engines (Export) Limited on its formation last March, has now taken up his duties with that company. He has relinquished his appointment as London Manager of the Brush Electrical Engineering Co. Ltd.

Among appointments made recently to the Order of the Bath, in recognition of gallant and distinguished services in North-West Europe, is that of Major-General (acting) Charles Scott Napier, C.B.E., late Corps of Royal Engineers, as a Companion of the Order (Military Division).

## COLONIAL RAILWAY APPOINTMENTS

The Colonial Office has announced the following appointments:

Mr. W. T. P. Perkins, Operating Superintendent of Railways, Trinidad, to be General Manager, Trinidad Government Railways.

Mr. F. Sander, Senior Accountant, Nigerian Railway, to be Assistant Chief Accountant.

Mr. C. B. Watson, Senior Assistant Engineer, Nigerian Railway, to be District Engineer.

Mr. R. Bridgman, Assistant Engineer, Nigerian Railway, to be Senior Assistant Engineer.

We regret to record the death, at the age of 64, of Mr. Harry Ireland, who was Stationmaster, Kings Cross, L.N.E.R., from 1932 until his retirement in 1943.

Mr. E. W. Sisman has been appointed a Director of British Belting & Asbestos Limited. He continues as General Sales Manager, which position he has held since 1942.

We record with regret the death on June 8 of Mr. Sidney A. Osborne, who retired recently from the Battersea Goods Depot of the Southern Railway. He was an expert photographer of railway scenes, and a keen and well-informed railway enthusiast.

## METROPOLITAN-VICKERS ELECTRICAL CO. LTD.

Mr. D. MacArthur, Director, has been appointed General Sales Manager.

Mr. W. A. Coates, while retaining his position of Sales Manager, Switchgear Department, is appointed Assistant to General Sales Manager.

Mr. G. W. G. Canter has been appointed Manager, Marine & Special Contracts Department.



Lafayette]

Mr. P. W. Pine

[London]

Solicitor, Great Western Railway Company, 1941-45

August 17, 1945

**Mr. T. Firth**

Appointed Staff Assistant to Chief Commercial &amp; Chief Operating Managers, L.M.S.R.

**Mr. John Fallows**

Appointed District Goods Manager, Warrington, L.M.S.R.

**Mr. L. S. Kettle**

Appointed District Goods &amp; Passenger Manager, Derby, L.M.S.R.

Mr. T. Firth, Assistant to Superintendent of Organisation & Staff, Chief Commercial & Chief Operating Managers' Office, Watford, H.Q., L.M.S.R., who, as recorded in our July 13 issue, has been appointed Staff Assistant to Chief Commercial & Chief Operating Managers, Watford, H.Q., received training at several stations in the Manchester Goods Manager's District, L.N.W.R., before being transferred to the District Goods Manager's Office and obtaining two years' training in cartage matters. Subsequently he received twelve months' station training, and then returned to the Manchester District Goods Manager's Transit Office; later he was transferred to the Staff Section. In 1917 Mr. Firth went to the Chief Goods Manager's Office, Euston, as Deputy Chief Staff Clerk, and in 1921 returned to the Manchester District Goods Manager's Office to fill the position of District Staff Clerk. In 1924 he was promoted to be Chief Staff Clerk to the Chief Goods Manager, Euston, and in 1931 was appointed Staff Assistant to the Chief Goods Manager. On re-organisation of the Goods and Traffic Departments in 1932 Mr. Firth was appointed Assistant to Organisation & Staff Superintendent.

Mr. John Fallows, Assistant District Goods & Passenger Manager, Chester, L.M.S.R., who, as recorded in our July 13 issue, has been appointed District Goods Manager, Warrington, was born in 1887, and joined the District Superintendent's Office, Manchester, Lancashire & Yorkshire Railway, in 1907. In 1925 he became Chief Rates Clerk, Warrington, and in 1929, Chief Rates & Commercial Clerk there. Two years later he was appointed Commercial Assistant to the District Goods Manager, Warrington, where in 1938 he became Assistant District Goods Manager. Mr. Fallows was appointed Assistant District Goods & Passenger Manager, Chester, early in 1941.

Mr. Lancelot Sidney Kettle, Assistant District Goods Manager, Manchester, L.M.S.R., who, as recorded in our July 13 issue, has been appointed District Goods & Passenger Manager, Derby, was born in 1899, and joined the L.N.W.R. in 1916 as a probationer at London goods and passenger stations. In 1921 he was

appointed to the Cartage Department in the Chief Goods Manager's Office, London. In 1923 he joined the Western Division Superintendent's staff, and from April, 1928, was engaged on outdoor cartage work. Mr. Kettle transferred to the then newly-formed Commercial Research Section in 1933, and went to the Operating Department (Cartage Analysis) in 1934. In 1936 he was appointed Cartage Assistant to District Goods Manager, Manchester, and in 1938 became instructor at the School of Transport, Derby. In 1939 he was appointed Goods Agent, London Road, Manchester, and in April, 1944, Operating Assistant to District Goods Manager, Manchester, where, in the next December, he became Assistant District Goods Manager.

We regret to record the death on August 10, at the age of 52, of Mr. G. H. Loftus Allen, Advertising & Publicity Officer of the London Midland & Scottish Railway, and Chairman of the Railway Executive Committee Publicity Committee. Mr. Loftus Allen entered L.N.W.R. service as a probationer in 1913, and served in both Goods and Passenger Departments in the Liverpool District. In April, 1915, he went to France as a Railway Transport Officer; subsequently he was appointed Deputy Assistant Director of Railway Transport, with the rank of Major. In April, 1920, he was appointed Chief of the British Railway Mission to Roumania. Mr. Loftus Allen returned to L.N.W.R. service in December, 1920, and in February, 1921, was appointed Runner, Central Wales District; in the next

**The late Mr. G. H. Loftus Allen**Advertising & Publicity Officer, L.M.S.R., 1927-45  
Chairman, R.E.C. Publicity Committee, 1944-45

August 17, 1945

## THE RAILWAY GAZETTE

173

September he became District Runner, Manchester, and he was Superintendent of the Line's Runner at Birmingham from September, 1922, to September, 1923. He then spent six months in the U.S.A. in connection with a scheme for L.M.S.R. goods representation in America. From 1924 to 1926 he was in charge of the Continental Section of the Chief Goods Manager's Department at Euston; and early in the latter year he became Deputy Head of the Publicity Department. Mr. Loftus Allen was appointed Advertising & Publicity Officer in 1927. He was Chairman of the British Railways Advertising & Public Relations Committee for 1930. He became Chairman of the R.E.C. Publicity Committee at the beginning of 1944. Mr. Loftus Allen visited South Africa with Mr. Arthur Towle, lately Controller of L.M.S.R. Hotel Services, in connection with the *de luxe* restaurant which was run by the L.M.S.R. at the Empire Exhibition at Johannesburg of 1936; and in 1939 he attended the formal opening of the British pavilion at the World's Fair at New York, as a representative of the British railways. The funeral was on Wednesday at St. Marylebone Cemetery, East Finchley.

Among those present, in addition to Mr. H. W. A. Waring and other relatives, were:

*L.M.S.R.*

Mr. G. R. Smith, Secretary, Major F. A. Pope, Chief Commercial Manager, Mr. J. Shearman, Road Motor Engineer, Colonel H. Rudgard, Motive Power Superintendent, Messrs. J. O'Neill, Executive Research Office, W. P. Bradbury, Assistant Chief Commercial Manager (Outdoor), C. Johnstone, Assistant Chief Commercial Manager (Passenger), S. O. Cotton, Assistant Engineer (Structures), A. W. Norman, Assistant Chief Stores Superintendent (also representing Mr. R. A. Riddell, Chief Stores Superintendent), W. H. Vine, Assistant District Goods Manager (Commercial) (also representing Mr. A. L. Castleman, London District Goods Manager), C. E. A. Howard, London District Passenger Manager's Office, W. C. Brudenell, Advertising & Publicity Department, D. Y. Faulkner, Advertising & Publicity Department, R. H. D. Mayes, Advertising & Publicity Department, Squadron-Leader J. Shearman, Advertising & Publicity Department (O.H.M.S.), Colonel K. R. N. Speir, until retirement Overseas & Continental Traffic Manager, now Secretary, Transportation Club, Mr. H. W. Phillips, Mr. Geoffrey Towle, Controller's Assistant, L.M.S.R. Hotels, and Mrs. Towle.

*G.W.R.*

Major J. Dewar, Publicity Officer (also representing Mr. K. W. C. Grand, Assistant General Manager, and Mr. Gilbert Matthews, Superintendent of the Line), Messrs. R. F. Hurford, Assistant Publicity Officer (also representing Flight-Lieutenant J. Edsberg), G. Dyall, until retirement Acting Publicity Officer.

*L.N.E.R.*

Messrs. C. G. G. Dandridge, Passenger Manager, Southern Area, A. J. White, Advertising Manager, G. Dow, Press Relations Officer, F. G. Goodricke, until retirement Assistant Advertising Manager.

*Southern Railway*

Messrs. C. Grasemann, Public Relations & Advertising Officer, R. H. Hacker, Continental Superintendent.

*L.P.T.B.*

Mr. H. T. Carr, Publicity Officer.

*British Railways Press Office*

Mr. J. R. Hind (also representing Mr. G. Cole Deacon, Secretary, Railway Companies' Association).

*Railway Clearing House*

Messrs. A. J. Foale, A. C. Everard, Secretary, Advertising & Public Relations Committee (also representing Mr. J. E. T. Stanbra, Secretary, Railway Clearing House).

*Others*

Colonel and Desmond Brook-Hitching, Miss Elizabeth Crozier, Mrs. James Dewar (also representing Captain and Mr. Paul Loraine and Captain and Mrs. W. E. Sharpe), Mr. R. Dias, Comte Dupuis, Mr. J. A. Kay, Editor, *The Railway Gazette*, Mr. F. M. Lambert, Photo-

chrom Company, Captain Peter Moffatt, Mrs. Arthur Towle, Mr. Norman Wilkinson, P.R.I. and Mrs. Norman Wilkinson.

*APPRECIATIONS*

The death of Loftus Allen leaves a gap that no one else will fill quite in the same way. His many friends both on and off the railway will keep his memory green. Green is an appropriate word for he was characteristically a man from Southern Ireland. Until three years ago, when first one illness and then another, caused absences from Euston there were many who thought that with probably fifteen years of railway life in front of him there were several positions on the L.M.S.R. in particular and British railways in general he might have filled with distinction in the years to come.—K.

Loftus Allen had two outstanding gifts—the gift of friendship and the gift of hospitality. As to the first, he never could realise how many people cared for him, because his never-failing sympathy was unassumed and unassuming. As a host he had a flair for brilliant conversation and repartee and his flat became a rendezvous for his many friends whom he loved to entertain. He had travelled widely and, during the war, one would meet in his flat a coterie of Allied and Dominion officers, who came to regard "Chez Allen" as a second home. They as well as all his other friends, will find themselves incomparably the poorer by his tragic and untimely death.

*—A FRIEND.*

The position of Advertising & Publicity Officer to the L.M.S.R., which he held for 19 years, enabled him to give full play to his unerring instinct for what was good in both art and literature. His charm of manner and his never failing sense of humour gave pleasure to all who came into contact with him. As a Chairman of the Railway Executive Committee's Publicity Committee which was responsible for joint railway propaganda since January, 1944, and previously as a member, he contributed much to the efficient handling of a difficult task. Of Loftus Allen it can be truly said that he had no pleasures but in his friends. To be in his company was a mental tonic;

he was an exponent of the, alas, dying art of conversation. His wit added piquancy to any company and his genial personality ensured the success of any gathering. Loftus Allen was essentially cosmopolitan. London and Paris—he spoke French fluently—he loved. Neither blitz, flying bombs, nor rockets drove him from his West End flat. Indeed, throughout the war years No. 7G, Hyde Park Mansions, became a caravanserai for his friends both in and out of uniform. Those who knew him intimately will remember him always as a sympathetic and understanding colleague, a generous and genial host, and a lovable friend.—B.

I have known Loftus Allen for 30 years and shall always remember him primarily as a gifted conversationalist, whose breadth of knowledge, aided by an exceptional memory, was tinged with a mischievous gaiety, which always entertained. His love of satire and gossip failed to disguise the kindest of hearts. Although not a cockney by birth, London was his by choice, with Paris a close second. For Loftus Allen was bilingual and latterly as much French was spoken in his flat as English. While the railway loses an efficient officer, his friends will lose a generous host and an intellectual and charming companion.—C.G.

We regret to record the death on August 16, at the age of 58, of the Rt. Hon. Leslie Burgin, LL.D., who was Minister of Transport, 1937-39, and Minister of Supply, 1939-40.

We regret to record the death on August 14, at the age of 64, of Sir Allan Macdiarmid, Chairman & Managing Director of Stewarts and Lloyds, Limited, and President of the British Iron & Steel Federation.

Mr. D. C. Coleman, Chairman & President of the Canadian Pacific Railway Company, and Chairman of Canadian Pacific Steamships Limited and Canadian Pacific Air Lines Limited, is in this country on a business visit associated with the company's European interests.

## Railway Wage Negotiations



*A group of officers at Charing Cross Hotel during an interval between meetings with representatives of the railway unions concerning wages and conditions*

*Left to right : Messrs. H. Adams-Clarke, Chief Staff & Establishment Officer, G.W.R.; H. H. Halliday, Principal Assistant (Staff), Chief General Manager's Office, L.N.E.R.; G. H. Brooks, Chief Staff & Welfare Officer, L.P.T.B.; H. J. Comber, Chief Officer for Labour & Establishment, L.M.S.R.; and O. Cromwell, Chief Officer for Labour & Establishment, Southern Railway*

August 17, 1945

## TRANSPORT SERVICES AND THE WAR—307

### Travel Priority on Kent Coast

In Hythe and Folkestone, where frequently there are long queues for buses, the East Kent Road Car Company has issued special tickets to essential workers to give them priority over holiday-makers and casual travellers.

### "Across the Border"

Once again passengers travelling in daylight on the L.N.E.R. East Coast route between England and Scotland know when they cross the Border. The distinctive coloured signs on each side of the line about a mile north of Berwick-on-Tweed, which were removed for security reasons during the war, were re-erected in July. The signs bear the wording "Across the Border" at the top, and are 14 ft. wide and some 8 or 9 ft. high. On one side appears the Thistle, St. Andrew's Cross, and the Scottish Unicorn, with an arm pointing towards Scotland lettered "Scotland"; and on the other side the Rose, St. George's Cross, and Lion Rampant, with a similar arm lettered "England."

### German Railways in the Channel Islands

We learn with interest from a correspondent who returned late in June from a tour of the Channel Islands, that during the German occupation there have been considerable railway developments there. For the transport of materials from the docks at St. Helier and St. Peter Port, narrow-gauge lines have been laid round practically the whole coastlines of Jersey and Guernsey. The Jersey lines are metre gauge, and those in Guernsey are of 1 ft. 11½ in. gauge. At the maximum 7 or 8 steam locomotives were working in Jersey, and 3 or 4 in Guernsey, of Dutch, German, and French origin, but the only one seen by our correspondent was an 0-4-0 tank at St. Peter Port, built by Henschel of Kassel in 1909. The Germans pushed their single-line tracks across farms and fields, and where necessary right through houses, and built concrete foundations for the track where the ground was soft. The lines appeared still to be in good running condition.

### Traffic Between Italy and Austria

Reference to the expediting of the necessary railway works to enable traffic to be resumed between Italy and Austria on the Brenner route were made in our July 13 issue, page 46. Reconstruction of the Brenner line proceeded even more rapidly than was foreseen, and it appears that traffic was resumed early in July. The final link for uninterrupted railway facilities from Naples to Munich was provided by the opening of the first railway bridge over the River Po since the capture of the Po Valley; it was officially opened to traffic on July 9.

We are indebted to a member of our staff serving in Italy for the following further details. The first major movement over the new bridge consisted of units of the U.S.A. 85th Infantry Division moving to a re-deployment training area. The completion of the River Po bridge is regarded as the climax of nearly two years of one of the most difficult operations in railway history. Beginning with the Paestum-Pontecagnano line in September, 1943, troops of the U.S.A. Military Railway Service of the 5th Army Transportation Corps have followed closely behind the advancing troops, repairing the battered Italian railway lines and placing them in operation. Soon after the end of the Italian campaign, the railway service from the South to the River Po was available, but a motor lorry ferry service was necessary across the river.

The new bridge, spanning the river near Highway 12 between Revere and Ostiglia, eliminates this shuttle and makes possible the operation of through trains for supplies and troop movements, as well as for civilian traffic. The span is a deck-type one-track bridge, 1,430 ft. long and about 50 ft. above the water. It was constructed in about six weeks by the 719th Railway Operating Battalion of the 701st Military Railway Service, assisted by the 175th Engineer Regiment of the 5th Army.

Italian rolling stock is used on the railway, which is operated by the Italian State Railways under the supervision of the 701st Military Railway Service. Diesel locomotives are used from Naples to Bologna, steam locomotives from Bologna to Trento, and electric locomotives from Trento north through the Alps. The track is being maintained by German personnel.

### Berlin Underground

On the Berlin U-Bahn, or local underground railway, 88 stations are reported to be working and 15 still closed, according to a press message of August 3.

### Locomotives for France

The first of 700 locomotives being built in the U.S.A. for the French Government, has left the United States for France, according to the New York radio of July 31.

### British Zone Railways in Germany

Railway transport from France and Belgium to all parts of the British-occupied zone of Germany is now possible, according to an announcement from the Control Commission Headquarters at Lübeck on August 7. The railways in the Ruhr are carrying 40,000 tons of coal daily, compared with 5,000 tons six weeks ago.

### France-Spain Rail Traffic Resumed

Railway traffic between France and Spain, which was suspended in June of this year, has been resumed, according to a Paris radio announcement of August 7.

The first passenger and freight train to cross the French frontier since the liberation arrived at Irún on August 4, inaugurating a regular schedule from Paris to Madrid. A few minutes after its arrival, the Madrid-Paris train, waiting on the French side of Irún international station, crossed to Hendaye for Bordeaux and Paris.

### Railway Restoration in the Philippines

The only railway transport in operation in Manila in May was the 162 miles of the main line of the Manila Railroad from Manila to San Fernando. This was being operated by the U.S.A. Army with Filipino civilian employees, except for soldier locomotive drivers. One carriage with a capacity of 50 was allocated to civilian passengers daily. Until May 16, only military cargo was carried. Beginning on that date, the Army also made available sufficient goods space to carry 150 tons of civilian goods daily, each way, between Manila and San Fernando, the northern terminus of the railway in La Union Province. At that time the railway had the following equipment in operation:

59 steam locomotives and 10 diesels, 52 passenger carriages, 842 goods wagons, and 14 baggage cars; 3 passenger carriages, 3 baggage cars, and 29 goods wagons were undergoing repair. Much of this belonged to the Army. No additional locomotives or rolling stock were available for use, but the Army was reported to be bringing others from the United States. The pre-war route mileage of the Manila Railroad, which is owned by the Philippine Government, was 708 miles (700 single track and 8 double track). This railway had buses before the war, but none is working now.

The Philippine Railway before the war consisted of 72 miles of main track on Panay and 60 miles on Cebu, with 28 miles of yard track and sidings. This undertaking is not working at present.

Lines formerly operated by sugar centrals for transport of cane were badly disrupted, the locomotives and rolling stock taken away, and rails and sleepers stolen.

## Wagon Repairs Limited

In the course of his statement at the 27th ordinary general meeting of Wagon Repairs, Limited, the Chairman (Sir Leslie Boyce, K.B.E.), said:—

"Under the arrangement made with the Ministry of War Transport, the element of profit in the price for each job has been pegged at the September, 1939, level. That is to say that, while we may include in our charges the proved increases in the costs of wages and materials, no additional profit is allowed. Hence the pre-war percentage of profit automatically falls as costs increase."

Cost-of-living bonus paid to the company's employees has to a large extent been recouped from the Railway Clearing House by an agreed percentage added to our charges; but the percentage so allowed has not been sufficient to enable us to recover all our expenses in this direction. The amount of cost-of-living bonus paid during the year has been under-recovered to the extent of £16,500.

Throughout the war the company, which is the largest and most successful organisation of its kind in the world, has made and is still making a massive sustained and ever-increasing contribution to the national effort. Its own operations in repairing vast numbers of crippled railway wagons have been, and are, indispensable to the full operation of the country's rail transport system. Every wagon restored to traffic is just as much a contribution to the war effort as is the assembly of an aeroplane or a tank. From the outbreak of hostilities in September, 1939, to March 31, 1945, Wagon Repairs, Limited, and its subsidiary companies have repaired the huge total of 2,970,000 wagons, including over 300,000 major overhauls in the shops. In addition to this number, no less than 2,710,000 wagons have been lightly serviced at outside junctions and cripple sidings.

I think we may justifiably claim for our company, with its unrivalled performance in its own sphere of activity, that it has a record of high service to the nation which is worthy of the best traditions of British industry. Yet it is not to the past that we look for our greatest achievements, but to the future. During the year we have, within the limits permitted, continued our policy of systematic modernisation of buildings, plant, machinery and methods at our works and out-stations. We have also extended our facilities for repairing all steel, steel frame and tank wagons at Gloucester, Chester, Rotherham, Chesterfield, Long Eaton, Dagenham, Cardiff, Swansea, Stoke and Wellingborough.

With our present facilities we are capable of employing more men and of giving a correspondingly larger output, immediately additional labour becomes available. It will remain the constant aim of your directors to increase the efficiency of the company in all its departments, so that we may improve working conditions where desirable and continue to provide our customers, who include many of the leading industrial firms in the country, with the best possible facilities and an unequalled service.

## Staff and Labour Matters

### Railway Wages

Negotiations in connection with the programmes of the trade unions for improvements in rates of pay and conditions of service of railway employees commenced on July 31 when representatives of the Railway Executive Committee met representatives of the National Union of Railwaysmen, Associated Society of Locomotive Engineers & Firemen and the Railway Clerks' Association in London. The meeting was adjourned, and on the next day, August 1, the trade union representatives met the Railway Executive Committee and, in the words of the official announcement issued at the end of the meeting, "after a long discussion both sides adjourned for the purpose of giving further consideration to the points at issue and will meet again at 3 p.m. on Thursday, August 2."

The meeting on August 2 did not take place as announced, but at 3.30 p.m. the leaders of both sides met at the Ministry of Labour and at the conclusion of the meeting the following announcement was issued by the Ministry:—

"The parties to the railway negotiations decided today to adjourn their discussions in order to inform the Ministry of Labour of the present position. A meeting at which representatives of all the parties to the negotiations were present was accordingly held at the Ministry of Labour this afternoon, and will be continued tomorrow morning."

On Friday, August 4, the parties again met at the Ministry of Labour, and late in the evening Mr. George Isaacs, the new Minister of Labour, took part in the discussions. At the conclusion of the discussions the following announcement was issued by the Ministry of Labour:—

"At a final meeting at the Ministry of Labour tonight the parties informed the Minister that they were in a position to resume negotiations that had been temporarily suspended.

"Proposals have been made by the Railway Executive Committee which may prove to be a satisfactory basis on which discussions can proceed.

"The parties have arranged to meet on Tuesday next, to continue their negotiations and to examine adjustments consequent upon the proposals.

"In view of statements that have

given rise to fears of an interruption of services for the holiday period, the Minister feels it necessary to point out to all concerned that unauthorised action by any section of railway employees may have a most detrimental effect on the negotiations that have now to be resumed and the interest of their fellow workers.

"The trade unions look to all concerned to obey loyally the instructions of their leaders who are negotiating on their behalf."

The negotiations could not be resumed on Tuesday, August 7, as previously arranged because the full executive committee of the three unions found it necessary to have a joint meeting on that date to review the many important points of detail that arise on the offer made by the Railway Executive Committee. The negotiations, however, were continued on Wednesday, August 8, between the Railway Executive Committee and the three railway trade unions and at the close of the discussions it was officially announced that "whilst the negotiations with the A.S.L.E. & F. and R.C.A. are proceeding, the N.U.R. is not satisfied on certain points, and desires to lay its views before the Minister of Labour on the proposed basis of settlement."

The following announcement was made on August 10:—

Provisional agreement has been reached in principle between the Railway Executive Committee and the National Union of Railwaysmen, the Associated Society of Locomotive Engineers & Firemen and the Railway Clerks' Association on the claims of the unions for improvements in rates of pay and conditions of service of railway employees:—

#### Rates of Pay.

*Wages grades.*—Contingent on agreement being reached between the parties in regard to the differential rates of pay for grades above the minimum rated grades, the minimum composite rate of pay (including War Advance) will be:—

Rural areas, 84s. a week.

Industrial areas, 85s. a week.

London, 87s. a week.

Discussions on the differential rates of pay are proceeding between the parties and increases ranging up to 7s. 6d. a week

for certain other grades are under consideration.

*Salaried Grades.*—Minimum increases of £10 to £15, according to classification, with increases in War Advance.

#### Sunday Duty.

The rate of pay for Sunday duty will be increased from time-and-a-half to time-and-three-quarters.

#### Holidays.

*Wages Grades.*—Instead of 6 days as at present holidays with pay up to 12 days a year, with leave of at least two Bank or Public Holidays, to apply from January 1, 1946.

*Salaried Grades.*—The holidays for male salaried staff in Classes 3 and 4, also male staff in Class 5, and Women Clerks with 10 or more years adult service, to be increased from 12 to 15 days a year.

#### Pensions and Sick Pay.

The claims to remain in abeyance until more information is available in regard to the proposed National Insurance Schemes.

#### Overtime and Night Duty.

Present rates to continue.

#### 40-hour Week.

Claim declined.

#### Other Claims.

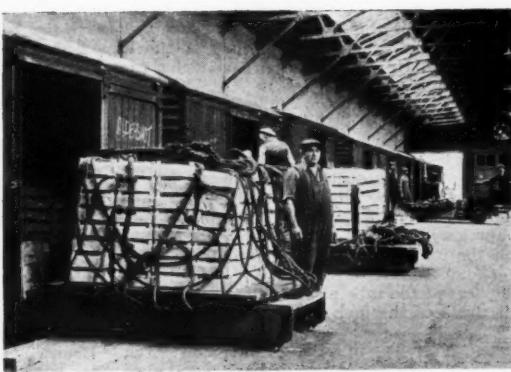
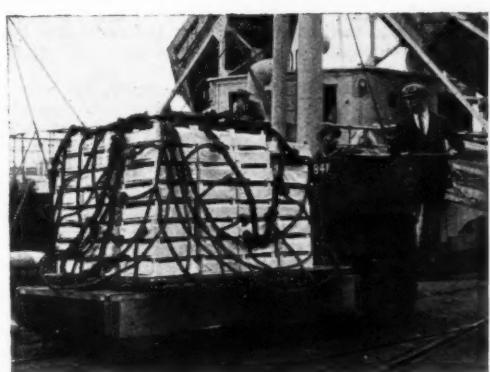
The remaining claims, which are of a minor character, to be the subject of further discussion between the parties.

#### VE Holidays

The arrangements agreed between the railways and the trade unions in connection with the holidays following the cessation of hostilities in Europe provided for holidays to be granted to the staff on VE Day and VE + 1 Day, with special payment to those who were required to work and a third day's holiday to be given locally on the day of the "general holiday" in the locality in which they are employed.

As a number of local authorities do not propose to arrange a general holiday in connection with the third day's celebrations the arrangements for the third day's holiday for railway employees have been varied, and where it is definitely established that a local authority does not intend to make arrangements for a third day's celebrations, railway employees will be given their third day's holiday as and when convenient, commencing as early as possible.

## First Consignment of Channel Island Tomatoes at Southampton



The first consignment of tomatoes from the Channel Islands arrived at Southampton Docks recently aboard a Southern Railway cargo steamer. Above (left), the tomatoes after being unloaded from the steamer, and (right), in the shed at Southampton on their way to consuming centres

August 17, 1945

**Ministry of War Transport Accident Report**  
**Between Hinton Admiral and New Milton, Southern Railway;**  
**April 23, 1945**

Mr. J. L. M. Moore inquired into the fatal accident which occurred to a Southern Railway fireman named V. J. C. Perry, on the *Lord Nelson* class, 4-6-0 express engine No. 854 on April 23, 1945, as it was hauling the 11.2 a.m. train Bournemouth West to Waterloo and was running between Hinton Admiral and New Milton Stations, rather less than 12 miles from its starting point. The crown of the firebox collapsed, due to shortage of water, and Perry sustained severe scalds and other injuries. After receiving attention near the site of the accident he was removed without delay to hospital, where he died three days later. The driver, F. Billett, escaped with comparatively slight scalds on his hands, wrist, and neck. Forced to leave the footplate, he applied the brake from outside the cab and brought the train to a stand in about 1,000 yd. Valuable assistance was rendered by a British and two American doctors and some R.A.F. personnel. The train was delayed 78 min.

**PARTICULARS OF ENGINE**

This class of engine has a copper firebox, 10 ft. 5 $\frac{1}{2}$  in. long and 5 ft. wide towards the top, with a  $\frac{1}{8}$  in. single plate forming the sides and crown, riveted to the  $\frac{1}{8}$  in. flanged tube and backplates. The crown slopes slightly, being 3 in. higher at the front than at the back, and is supported by 360 direct roof stays screwed into the plate and secured by 1 in. nuts.

There are three fusible plugs along the longitudinal centre line of the crown 8 in. and 16 in. from the tube plate and 8 in. from the backplate, referred to hereafter as the front, middle and back plugs. Each one is 2 $\frac{1}{2}$  in. long, projecting about 1 in. in the water space above the crown plate; the upper part of the central hole is tapped  $\frac{1}{4}$  in. Whitworth, for 1 $\frac{1}{2}$  in., including  $\frac{1}{4}$  in. countersink, filled with 99.75 per cent. pure lead; the remainder, which is towards the fire and empty is  $\frac{1}{4}$  in. dia. and smooth.

The engine left Eastleigh works after general repair on March 20, 1945, and had run approximately 6,300 miles. It was stabled at Bournemouth shed, where the leading boilermaster examined the boiler when it was last washed out on April 18, five days before the accident. He was again in the firebox on the morning of April 22 to deal with some leaky tubes and made a superficial examination of the rest of the firebox. He was satisfied that everything was in order.

After the accident there was a well-defined mark along the tube plate and sides of the firebox, showing the water to have been at least 3 in. below the highest point at the front. Above that mark the plates were discoloured by scorching. The crown plate was bulged downwards some 18 in. at its lowest point, after forcing 196 nuts off the roof stays and disturbing 27 others. Of 30 transverse rows of stays only the one nearest the tube plate and the seven at the back of the firebox remained intact.

There was a rent in the crown plate, some 18 in. long, towards the back of the bulge and other damage and indications of shortage of water. The lead in the middle plug had melted completely, but a small amount remained in the front

plug and rather more in the back one. In both cases it must have allowed some steam to pass. There was damage to the firebox, smokebox doors, and other items. The gauge fittings were found to be in order and the safety valves and pressure gauge acted and registered correctly against a master gauge. The injectors were found to be working normally.

**CIRCUMSTANCES OF THE ACCIDENT**

The engine was prepared at Bournemouth Central shed by Driver Rabbets and Fireman Robbins, later making a run to Wimborne and reaching Bournemouth West at 10 a.m. It was attached to the London coaches at 10.45 a.m. and Rabbets stated that shortly afterwards he noticed his fireman shut off the injector. The top of the water was not visible and he was told it was "right up out of sight." He satisfied himself by trying one of the drain cocks, but on reaching the summit of a steep rise nearly a mile from Bournemouth West he saw the top of the water just below the upper packing nut of the gauge column.

The injector was working and the water quickly disappeared, where it remained until he handed over the engine with a full head of steam at Bournemouth Central to the other crew. No remarks passed between the two sets of men regarding the condition of the boiler. Driver Billett admitted, however, that he could not see the top of the water when he took charge and concluded it was above the upper nut, which was not unusual.

The majority of men preferred to start on such a journey with as much water as possible. He did not try the gauge cocks himself, nor did he notice Fireman Perry do so until they were half a mile from Bournemouth Central, when he was satisfied that the boiler was full. The injector on Perry's side was used freely up the bank from Christchurch and pressure was easily maintained. About 1 $\frac{1}{2}$  mile short of New Milton, Billett heard a noise and remarked that the safety valves were going to lift but Perry pointed out that pressure was 10 lb. below the blowing off figure of 220 lb.

Billett tried to locate the sound, a hissing noise, and concluded it was coming from the firebox. He declared he then observed the water to be within one inch of the top of the gauge. He decided to defer examination until the stop at New Milton; a moment or so later the firebox crown collapsed.

**CONCLUSION**

The water must have been actually out of sight below the lower gauge nut before the train left Bournemouth West and probably earlier. When the engine is on the level this nut is only  $\frac{1}{4}$  in. above the highest fusible plug and probably the latter was only intermittently covered by water from the early stages of the journey.

Had the water been above the upper nut on leaving Bournemouth West, it is estimated that the engine could have travelled well beyond New Milton, without the use of either injector, before the front and middle plugs became uncovered; it might then travel a further five miles before the

water fell sufficiently to cause such extensive damage as occurred. Billett must bear the main responsibility for the accident.

It was an easy matter to have tested the gauge at Bournemouth Central. He should have done so at the earliest opportunity, as the level of water could not be seen. He was placing too much reliance on others and must have been under a misapprehension when he thought he saw water in one of the glasses just before the accident. In fairness to him, however, it must be stated that the possibility of a mistake of this description by both the men from whom he took over would hardly be anticipated. He was not justified, however, in depending entirely on them or on his fireman, although he had been his regular one for 18 months and was qualified to act as driver. Perry himself was placing too much reliance on the previous crew. If he really tested the gauge, as alleged, he must have done so as a matter of habit without proper attention to the result.

Mr. Moore considers that there is no excuse for the other driver, Rabbets, and is unable to accept his statements, concluding that both he and his fireman paid little or no attention to the gauge over a considerable period. It is inexplicable how these men allowed the water to disappear below the lower nut and still think it out of sight at the top. Fireman Robbins admitted not testing the gauge during the five hours he was on the engine and there are grave doubts whether Rabbets ever did so. A driver at Bournemouth Central for 25 years, he failed properly to supervise Robbins, who clearly needed watching. He was not his usual mate, but had been a regular fireman for 2 $\frac{1}{2}$  years.

**BEHAVIOUR OF FUSIBLE PLUGS**

The report emphasises the uncertainty of the type of fusible plug involved in the case as an effective warning device. Although the lead in the middle plug eventually melted completely, apparently it did not do so until within a minute or so of the accident. Both the middle and front plugs must have been uncovered for 7 or 8 min., probably considerably longer. There is little doubt that the lead in both commenced to melt as soon as it became uncovered, but steam passing round and through it had a chilling effect and delayed further fusion. The proximity of the front plug to the tube plate, which had water close to the top flange, may account for the failure of the lead to fuse completely. The back plug, being some 4 in. lower, because of the slope of the firebox, combined with the gradient of the track, was not uncovered until considerably later, when steam prevented the lead from melting completely.

A fusible plug, to be fully effective, should give unmistakable warning immediately it is uncovered and so give time in which to take action. The design concerned, extensively followed in this country, appears to Mr. Moore not to be as effective as is desirable and he recommends that the railway companies review it in the light of recent experiences.

Attention should also be directed to the water gauge itself. When the top of the water is not visible it is sometimes difficult to determine at a glance whether there is water in the glass or not. Means should be sought to make this more readily apparent. Backplates with stripes which change direction when seen through the water have been tried with success, and Mr. Moore recommends the adoption of them or of some similar device.

August 17, 1945

## Institution of Railway Signal Engineers

### *Application of loudspeakers to railway operation*

At a meeting in London of the Institution of Railway Signal Engineers, Mr. W. J. Claridge, Associate Member, of the Signal & Telegraph Engineer's staff, G.W.R., Reading, read a paper on "Loudspeakers Applied to Railway Operation," illustrated by lantern slides. The President, Major R. Falshaw Morkill, was in the Chair and, in introducing Mr. Claridge, pointed out that this was the first occasion a paper on this increasingly important subject had been given before the institution.

The paper dealt with the general requirements of loudspeaker installations and their planning, the various forms of sound diffusers, the arrangement of the announcing points and accommodation for announcing staff, equipment used in railway yards, methods of wiring, with details of circuits, and the individual components of installations, such as microphones, amplifiers, with portable apparatus.

Mr. H. H. Dyer, Vice-President, opening the discussion, referred to some of the early experiments conducted with loudspeakers and the difficulties encountered. Quality of reproduction was very important, but although it was said that the announcer's voice should be faithfully reproduced he thought that was not the correct way to view the problem. What was wanted was a clear announcement, readily understood by the public amidst the not too favourable surroundings of a station, and if that was achieved the mere faithfulness of reproduction was secondary. One of the difficulties was resonance and in getting rid of that they had to suppress certain elements in the original speech, so that it was necessarily modified. Certain frequencies had to be eliminated to get the best final result. Resonance was, he thought, the cause of nearly all these troubles, which became more pronounced as volume had to be increased, and the low note levels were the most disturbing. Much could be done by filtering out when the resonance factors had been tracked down. The intelligibility of the speech lost nothing by cutting out the bass element. The higher pitch element was quite admissible. The tendency to provide musical items at some stations, the need for which many doubted, introduced difficulties; the signal engineer was faced with the problem of providing equipment to give both intelligible reproduction of spoken instructions and entertainment for the waiting passenger. The use of loudspeakers on the railway was beset with difficulties not felt to the same extent in other classes of work.

Mr. R. Dell spoke of the desirability of having specially qualified announcers, which was not always done. Results were often unsatisfactory when it was left to anyone to use the microphone. What some of them wanted was equipment which would eliminate the defects in the speech, supply the missing h's and so on! Cutting out certain sound elements would undoubtedly improve things at times. It was desirable to try and arrive at some degree of standardisation in the apparatus. No two makes were the same. The rack assembly system, though in itself satisfactory, was rendered useless by the bad design of many items of equipment, on which the terminals, resistances or other essential parts were made so inaccessible that the apparatus had practically to be taken apart to get at them. The

question of the various outputs and watt ratings needed going into. It looked as if a new sort of watt had come into the electrical world, revealed only with the aid of an oscillograph. Dealing with station installations, Mr. Dell thought that a number of small rating speakers gave much better results than one or two high powered instruments and that horns were not very suitable. Platform apparatus worked by sound track mechanism, in which up to 6 tracks could be provided, had proved successful and had been coupled satisfactorily with train describers. There was also an arrangement whereby an announcement could be repeated by merely pressing a button; a group of buttons enabled a particular announcement out of a number to be given at will.

Mr. W. J. Wright considered that the provision of loudspeakers at stations was a somewhat contentious matter. He thought nobody would get satisfactory loudspeakers until the stations themselves were constructed to suit. At present they had to do the best they could in unfavourable circumstances. At terminal stations the apparatus did useful work, but complications arose over regulating output to meet varying conditions, as when the station was empty and quiet or full and noisy; conditions varied from minute to minute and hour to hour. He wondered whether the problem was really being dealt with on the right lines and whether, in many cases, a good train indicator was not better. They often had the expense of permanent announcers and all the apparatus for a service which a large percentage of the passengers probably did not want. Still, the signal engineer's job was to make things work and a full-time occupation it proved to be. Several departments had a say in it. One question, seldom referred to, was the effect of these announcing systems on persons who had to live or work alongside stations. This matter would eventually come to a head, he thought, and they would have to make a decision about it. It might mean limiting the announcing to certain periods. It was yet possible that a good system of indicators might enable a great deal of announcing to be got rid of.

Mr. S. Barrs emphasised the importance of tone control and grading, and referred to automatic-volume regulation. Sometimes announcers who had means of regulating the output ignored them. Headphones could be provided to enable an announcer to hear the effect of what was said and, when noise necessitated it, to raise the voice, on the principle of the ordinary side-tone effect. The provision of the most suitable type of cable for yard installations was a matter of some importance. He thought that the running of amplifiers in parallel was helpful; if one failed they could still carry on to a sufficient extent with the other. In yards in the Fenland district there was always some wind, on the finest summer day, and they had to avoid speaking into the wind; loudspeakers were therefore set facing in the opposite direction to the prevailing winds. Undoubtedly the operating department put considerable reliance on the help given by loudspeakers, especially when trains were altered at short notice.

Mr. C. A. Browne spoke of the desirability of the announcer being able to see the trains and the various movements

going on in the station, and emphasised the need for fixing loudspeakers at the correct height.

Mr. H. J. W. Riddle remembered some of the early installations put down in this country. The practice was adopted of speaking quietly close to the microphone, but the results were not satisfactory and the public did not realise that announcements were being given; it was found much better to announce, at a distance from the apparatus, in a manner resembling that ordinarily adopted. Cutting down the bass content of speech certainly improved results, as other speakers had stated. The position of the announcer with respect to the microphone and the style of speaking had considerable effect on the final result. It was necessary to get just the correct atmosphere for giving instructions to the public with loudspeaker systems.

Dr. L. E. C. Hughes gave details of the methods adopted in the radio industry of arriving at the rating of loudspeakers, which were puzzling to some but depended on a number of factors which they were unaware of, such as degrees of distortion and harmonic effects. There were specifications covering these things which should be adhered to when arranging the supply of equipment. He emphasised the importance of protecting apparatus from the harmful effects of steam, etc., in stations and referred to the methods used for overcoming the varying differences in noise level. A correct diffusion of the announcements was very important and the apparatus called for in station work was different from that adapted to conditions in a sports field.

Mr. P. R. Allen spoke of the desirability of endeavouring to filter out unwanted noises and referred to the echo effect met with in domed stations, as well as to the necessity of investigating the question of frequencies and ascertaining the most suitable ones, as far as the human voice was concerned.

After Mr. W. J. Claridge had replied to the points raised the President moved a vote of thanks to him for his interesting paper. He also announced that a new programme of meetings was being prepared and that it was hoped to hold another social gathering in the autumn.

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ELECTRIFICATION IN RIO GRANDE DO SUL.—The President of Brazil has signed a Decree approving preliminary plans for the electrification of the railways in the State of Rio Grande do Sul.

TESTING CLAY BUILDING BRICKS.—A British Standard Specification for Methods of Testing Clay Building Bricks (B.S. No. 1257-1945) has been produced in an endeavour to unify the methods adopted for determining certain physical properties of building bricks. It lays down requirements in respect of sampling, both in the case of bricks in motion and bricks taken from a stack. Tests covering compressive strength, water absorption and calculation of saturation coefficient, soluble salts analysis, efflorescence, and drying shrinkage measurement are specified. An appendix gives details of a convenient form of apparatus for the measurement of drying shrinkage. A further appendix gives a series of suggested suitable brickworks tests which can be conducted quickly and easily; these tests are not in substitution for the standard tests, but are set out for the convenience of the manufacturer. Copies are available from the British Standards Institution, 28, Victoria Street, London, S.W.1, price 2s. each, post free.

August 17, 1945

## Notes and News

**Increased Cost of Petrol in Ceylon.**—Import duties on petrol have been increased in Ceylon from Rs. 1 a. 15½ to Rs. 1 a. 30 a gal. The price to consumers has been increased from Rs. 1 a. 85 to Rs. 2 (3s.) a gal.

**Silentbloc Limited.**—The directors of Silentbloc Limited recommend a final dividend for the year to May 31 last of 12½ per cent. making 25 per cent. for the year (same). Net profit is given as £20,648, subject to taxation, which compares with £25,006 for the previous year.

**Proposed Credit for San Paulo & Minas Railway.**—The Federal Governor of the State of San Paulo has submitted to the Administrative Council a proposal for the granting of a credit of Cr. \$1,400,000 to the Secretary of Transport & Public Works for the purchase of wagons and locomotives for the San Paulo & Minas Railway.

**L.N.E.R. Locomotive Conversion.**—The L.N.E.R. has recently modified one of its class "K3" 2-6-0 type 3-cylinder locomotives by raising the boiler pressure from 180 lb. to 225 lb. per sq. in., and by providing two cylinders in place of the previous three. The rated tractive effort of the modified locomotive is 29,250 lb., as compared with 30,031 lb. of the original locomotive.

**Coal Haulage Flameproof Diesel Locomotives.**—The latest coal haulage flameproof diesel locomotives produced by the Hunslet Engine Co. Ltd., are being made in gauges of 2 ft., 2 ft. 2 in., 2 ft. 3½ in., 2 ft. 8 in., 3 ft., and 3 ft. 6 in. They have a maximum tractive effort of 5,300 lb. The diesel engine fitted is the Gardner 4L2 type, governed to a maximum of 1,300 r.p.m., on which the maker's rating is 53 b.h.p., which gives a maximum speed of 8 m.p.h.

**North Central Wagon Co. Ltd.**—The report of the North Central Wagon Co. Ltd. for the year to June 30 shows a profit for the year, subject to taxation, of £70,492 (£61,638). After providing for £36,895 (£39,437) for N.D.C. and income tax, there is a net profit of £33,597 (£22,201). There was brought in £25,248 (£22,572) and after payment of ordinary dividend of 4·8d. per share (3·6d.) and £10,000 (nil) to reserve, £25,520 is carried forward. A full year's revenue was received from additional investments in railway wagons. Wagon Repairs Limited has paid a dividend of 10 per cent., less tax, on its ordinary capital for the year to March 31, and credit has been taken for the amount actually paid on July 26.

**Transport Classes in London.**—Transport classes in the London area will be available during the Institute of Transport session 1945-46 as follows:—At the City of London College, Electra House, Moorgate, E.C.2, evening courses in preparation for the Institute of Transport graduation examination will commence on September 24. Courses for the associate membership examination will be arranged if there are sufficient enrolments. Full courses for the graduation and associate membership examinations will be available again at the Ealing Technical College, Warwick Road, W.5. Classes also will be arranged for the Diploma in Road Transport of the Royal Society of Arts. All classes will commence on September 17. Courses for the graduation examination and for the Road Transport Diploma examinations of the Royal Society of Arts will be arranged at the Kennington Commercial Institute, Ken-

nington Road, S.E.11, if there are sufficient enrolments. At the North-Western Polytechnic, Prince of Wales Road, N.W.5, classes will be arranged for the graduation examination and for part I of the associate membership examination, as well as for the R.S.A. Road Transport Diploma. Classes will commence on September 24.

**London-Scotland Fruit Special.**—On July 30 the pre-war mid-day London-Scotland Fruit Special was reinstated by the L.M.S.R. The train, which runs daily, conveys Kentish fruit from the London markets to Glasgow. The first special arrived at its destination at 4.5 a.m. next morning, July 31.

**Central Argentine Railway Limited.**—Announcement is made by the Central Argentine Railway Limited of the payment on September 21 of interest on its 5 per cent. redeemable debenture stocks (1967-87) in respect of the half-years ended June 30 and December 31, 1941. The last payment, made in February, 1945, covered the eight months to December 31, 1940.

**Gold Coast Need for Sleepers.**—The demand for railway sleepers in the Gold Coast has been heavy, and 130,000 have been supplied for the extension of the railway in the Western Province. An order for 70,000 has been placed by the Gold Coast Railway, which is importing equipment for creosoting the sleepers before use. Since the revival of shingle manufacturing in the colony, it is estimated that more than 4,000,000 have been produced.

**Australian Air Line Nationalisation.**—The Australian Nationalisation of Air Lines Bill, to which reference was made in our August 10 issue (page 140), unexpectedly passed through all its stages unamended in the House of Representatives late on July 31. The Opposition decided that the real fight against it must be fought in the courts, and expects that the measure will be declared *ultra vires*. The 70 clauses of the Bill were passed in committee in under 15 minutes, the Opposition not moving one amendment.

**San Paulo Railway Prospects.**—At the ordinary general meeting of the San Paulo (Brazilian) Railway Co. Ltd. on July 31, the Chairman (Mr. G. M. Booth), in the course of his statement issued with the report for the year 1944, said that prospects for the current year were so far satisfactory. The traffic receipts were well maintained, and, although increased expenditure due to the higher level of salaries and wages had to be faced, he thought it might reasonably be hoped that as conditions became more normal some reduction might be looked for in the cost of fuel and possibly materials. The difficulty at present was to deal with the traffic with the equipment available. The road motor organisation was rendering valuable service in assisting in traffic movement, and was now being operated profitably.

**Additional Trains on G.N.R. (Ireland).**—To cope with the heavy traffic between Dublin and Belfast, the Great Northern Railway of Ireland from July 15 reinstated one of the trains in each direction which was cancelled early in the war. There is now a 10.15 a.m. express from Dublin to Belfast, due at 1.25 p.m., and a return express at 2.45 p.m., due in Dublin at 6 p.m. The 10.15 a.m. down carries a through portion for Londonderry, which goes forward as a new train from Portadown at 1 p.m., and returns from Londonderry at 4.25 p.m. At Portadown the through portion and buffet car are attached to the 6.55 p.m. to Dublin, due in Amiens Street at 9.28 p.m. The usual additional

summer services from Dublin at 8.45 a.m. to Bundoran and 12 noon from Bundoran to Dublin have been restored, with the addition of buffet car accommodation between Dublin and Clones; this arrangement enables the same buffet car to serve both trains and also the new 2.45 p.m. from Belfast to Dublin, for which the car is held at Dundalk. The Dublin-Bundoran service also runs this year on Sundays, which is an innovation, leaving Dublin at 10 a.m., and reaching Bundoran at 2.55

## British and Irish Railway Stocks and Shares

Stocks	Highest 1944	Lowest 1944	Prices	
			August 14, 1945	Rise/ Fall
<b>G.W.R.</b>				
Cons. Ord. ...	62½	55	53	- 3½
5% Con. Pref. ...	122½	114½	112	- 1½
5½% Red. Pref. (1950) ...	110½	104	103	- 1
5% Rt. Charge ...	135½	128	123	- 1½
5% Cons. Guar. ...	134½	125	120½	- 2
4% Deb. ...	118½	112½	107	- 2½
4½% Deb. ...	124½	114	109½	- 1
4¾% Deb. ...	124½	119	113	- 4½
5% Deb. ...	137	129½	126	- 1½
2½% Deb. ...	77	73	76½	-
<b>L.M.S.R.</b>				
Ord. ...	34½	27½	26½	+ ½
4% Pref. (1923) ...	64½	55	54½	+ 3
4% Pref. ...	81	72½	73	+ 2½
5% Red. Pref. (1955) ...	105½	102	101½	-
4% Guar. ...	107½	99	99	+ -
4% Deb. ...	111½	104	106	-
5% Red. Deb. (1952) ...	111	108	107½	-
<b>L.N.E.R.</b>				
5% Pref. Ord. ...	10½	7½	6½	+ -
Def. Ord. ...	5½	3½	3½	+ 3½
4% First Pref. ...	68½	55½	53½	+ 3½
4% Second Pref. ...	35½	28½	27½	+ 1½
5% Red. Pref. (1955) ...	101	97½	98	-
4% First Guar. ...	101½	96	96½	-
4% Second Guar. ...	95½	88	89½	- 1½
3% Deb. ...	88½	80	83½	- 1
4% Deb. ...	110½	103½	105	-
5% Red. Deb. (1947) ...	105½	101½	101½	-
4½% Sinking Fund Red. Deb. ...	107	104½	104½	-
<b>SOUTHERN</b>				
Pref. Ord. ...	80½	71½	71	+ 2
Def. Ord. ...	26½	23	22½	+ 1
5% Pref. ...	122	113½	111	- 1½
5% Red. Pref. (1964) ...	117½	112½	112½	-
5% Guar. Pref. ...	134	125½	120½	- 2
5% Red. Guar. Pref. (1957) ...	115½	112½	110	- 2½
4% Deb. ...	118	110	107½	- 1
5% Deb. ...	135½	127	126	- 5
4% Red. Deb. (1962- 67) ...	111½	107½	108½	-
4% Red. Deb. (1970- 80) ...	112	108½	108½	- 1
<b>FORTH BRIDGE</b>				
4% Deb. ...	107	103	104	-
4% Guar. ...	106½	102	103	-
<b>L.P.T.B.</b>				
4½% "A" ...	125	119	118½	-
5% "A" ...	133½	128	128½	-
3% Guar. (1967-72) ...	99½	98	99	-
5% "B" ...	124½	118½	116½	- 2
"C" ...	72½	64½	61	+ 1
<b>MERSEY</b>				
Ord. ...	35½	33	33	- 1½
3% Perp. Pref. ...	72	66	69	-
4% Perp. Deb. ...	105	103	104	-
3% Perp. Deb. ...	85½	79½	82	-
<b>IRELAND*</b>				
BELFAST & C.D.				
Ord. ...	9	6	6½	-
<b>G. NORTHERN</b>				
Ord. ...	33½	19	28½	+ 2
Pref. ...	49	37	46½	+ 2
Guar. ...	70	57½	72	-
Deb. ...	90½	81½	92½	+ 1
<b>IRISH TRANSPORT</b>				
Common ...	—	—	76½	-
3% Deb. ...	—	—	100	-

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## OFFICIAL NOTICES

*None of the vacancies on this page relates to a man between the ages of 18 and 50 inclusive unless he is excepted from the provisions of the Control of Employment Order, 1945, or the vacancy is for employment excepted from the provisions of that Order.*

**DESIGNER** and Chief Draughtsman wanted. Progressive position for engineer experienced in I.C. engine design or high speed transmission. Accustomed to deal with critical speed calculations and suspensions influenced by vibrations.—Reply stating salary required, full experience, etc., to Box No. 138, c/o, *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

p.m., the return journey is begun at 4.15 p.m., and Amiens Street is reached at 9.15 p.m.

**Designer and Chief Draughtsman Required.**—A progressive position is open for an engineer experienced in I.C. engine design or high-speed transmission. See Official Notices above.

**Fishguard and Cork Steamer Service.**—A thrice-weekly steamer service between Cork and Fishguard was introduced by the City of Cork Steam Packet Co. (1936) Ltd. on Monday last, August 13. Sailings will be made from Cork at 5 p.m. on Mondays, Wednesdays, and Fridays, and from Fishguard at 6 p.m. on Tuesdays, Thursdays, and Saturdays. The Great Western Railway train service is by the 7.55 a.m. train from Fishguard Harbour (Paddington arrive 4.5 p.m.) and the 8.55 a.m. train from Paddington. All civilian passengers must be in possession of a passport, or travel permit, and a sailing ticket.

**New Refreshment Bar at Waterloo Station.**—At Waterloo Station, Southern Railway, on August 7, a new tea-bar was opened opposite Platform 9. Built on modern and attractive lines and specially designed for rapid service, this bar will assist the holiday crowds now thronging the

**LOCOMOTIVE MANUFACTURERS ASSOCIATION** invite Applications for the appointment of OVERSEAS REPRESENTATIVE from candidates of British nationality possessing high technical qualifications as Locomotive Engineers, and with administrative commercial experience. The person appointed will be required to travel extensively, probably spending periods of several months abroad but with visits home for consultations. He must be accustomed to dealing with matters of policy with—e.g. heads of Government Departments, and to forming Appreciations and making Reports; and his present salary should be not less than £1,000 p.a. Applications giving full details of education, technical training and qualifications, and experience, also stating age (which should not exceed 50 years) and salary required, should be addressed to The Secretary, L.M.A., 87 Victoria Street, S.W.1.

station in one of their main problems of how to get quick refreshment before the train leaves. Some idea of the public demand for "stand-up" refreshments is given by the following figures for Waterloo Station for the year ended July 22, 1945:—

Hot drinks	...	...	...	2,377,570
Sandwiches	...	...	...	1,104,469
Buns and pastries	...	...	...	1,095,051
Portions of cake	...	...	...	709,878
Meat pies and sausage rolls	...	...	...	302,124

**Government Factories Allocated for Industry.**—Twenty more Government factories, with a total area of about 4½ million sq. ft., have been allocated by the Board of Trade for future civilian production. Including those announced in recent months, 74 Government factories, representing a total area of approximately 20 million sq. ft., and employment for about 200,000 workers, have been allocated for civilian industry. Negotiations for other factories are in progress.

**New G.W.R. Passenger Coaches.**—Post-war G.W.R. passenger coaches now under construction at Swindon will contain many improvements for the comfort of passengers. Fluorescent tubes, never hitherto used in railway coaches, will take the place of the usual electric bulbs, and will give an even daylight effect, without glare or shadow, over a whole compartment.

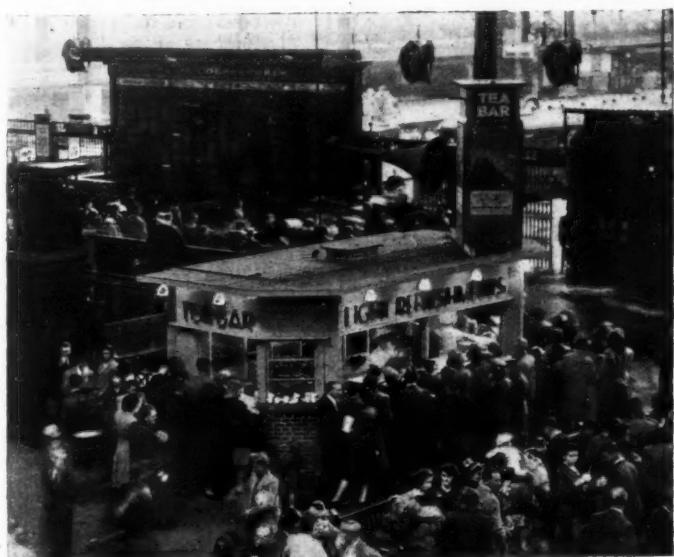
**Universal Directory of Railway Officials and Railway Year Book****50th Annual Edition, 1944-45****Price 20/- net.****THE DIRECTORY PUBLISHING CO., LTD.,  
33, Tothill Street, Westminster, S.W.1**

ment. The new coaches will be steel panelled, and will be larger than the present ones, giving greater width in the vestibules and compartments. They will be finished with Empire veneers and specially woven materials for internal furnishing. The vehicles will be turned out at the rate of one a week.

**The Newfoundland Railway.**—During the six months from April 1 to September 30, 1944, the operating revenue of the Newfoundland Railway totalled \$6,999,217 (Canadian currency), and operating expenses amounted to \$6,860,025. In the corresponding months of 1943, revenue was \$5,760,427 and expenses \$5,827,284.

**Locomotives for Cuban Railways.**—Of the 10 locomotives built in the United States for the Consolidated Railroads of Cuba, 8 were officially placed in service on May 31. These locomotives are of the 2-8-2 type, with a hauling capacity on the Consolidated Railroads (which have a maximum gradient of 2-21 per cent., compensated) of 75 loaded goods wagons.

**Railway Accident in U.S.A.**—It is reported that a number of lives was lost, and that about 50 passengers suffered injuries, at Michigan, North Dakota, on August 9, when two sections of the "Empire Builder" of the Great Northern Railway were involved in an accident. It is stated that the first section of the train had been halted because of a hotbox, and that while this was being attended to the locomotive of the second section crashed into its rear carriage.

**New Refreshment Bar on Waterloo Station (S.R.)**

A view of the tea-bar on Waterloo Station shortly after it was put into use on August 7

**Contracts and Tenders**

Below is a list of orders placed recently by the Egyptian State Railways:—

Midland Electric Manufacturing Co. Ltd.: Switches.

James Walker & Co., Ltd.: Jointings.

Tuck & Co., Ltd.: Jointings.

Exors. of James Mills Limited: Split taper pins.

J. Stone & Co., Ltd.: Accumulators.

Suffolk Iron Foundry (1920) Limited: Welding material.

Metropolitan Vickers Electrical Co. Ltd.: Carbon brushes and copper contact pieces.

Charles Richards & Sons Ltd.: Bolts and nuts.

Imperial Chemical Industries Limited: Paints.

T. W. Lench Limited: Bolts and nuts.

Sigmund Pumps (Great Britain) Limited: Pumps, etc.

A. S. Young & Co. Ltd.: Welding material.

Sun Electric Co. Ltd.: Steel staples.

Buck & Hickman Limited: Chain.

## Railway Stock Market

The Japanese surrender developments produced buoyant conditions in stock markets; rubber shares and securities of companies with Far East interests led with all-round gains. Persistent demand for British Funds at higher levels, particularly 2½ per cent. Consols, which reached the highest since 1936, and Local Loans, was accompanied by talk of a possible reduction in the Bank Rate and a big new Government loan. The rise in gilt-edged revived investment confidence, and prices in most other sections recorded a good rally, although a more cautious tendency developed before the King's Speech; political uncertainties had a restraining influence. Generally, the volume of business showed marked expansion, with selling on a moderate scale.

Home rails participated in the upward trend and were higher on balance, the recent heavy fall attracting buyers towards the end of last week when the view gained ground that prices had been marked down unduly on nationalisation fears. The prevailing assumption is that in any case developments in connection with the latter will probably take a long time to complete, and that the control agreement with dividends at around current rates may run for another two years. Junior stocks have made a favourable recovery from the setback of a week ago, and there has been better demand for such stocks as L.M.S.R. senior preference, L.N.E.R. guarantees and Southern preferred on the view that they seem moderately priced. Generally, however, debentures and senior preference stocks are lower as compared with a week ago, having failed to make much response to

the rise in gilt-edged. Nevertheless, in many cases yields must be regarded as attractive when judged in relation to the high-class investment merits of these stocks, due consideration to which should be given in any nationalisation developments. Great Western 4 per cent. debentures, for instance, were 107½, compared with 109 a week ago, the guaranteed stock has moved back further from 125 to 120½, and the 5 per cent. preference from 113½ to 112. Attracting attention subsequently, L.M.S.R. senior preference rallied to 73½, compared with 70½ a week ago, and the 1923 preference recovered from 51½ to 55½; the guaranteed stock was fractionally better at 98½. L.N.E.R. first and second guaranteed, at 96 and 91½ respectively, regained earlier small declines, as did the 3 per cent. debentures at 83½. Elsewhere, Southern preferred at 71 rallied moderately, but the 5 per cent. preference was 1½ down at 111, and the 4 per cent. debentures fractionally lower at 107½. London Transport "A" and "B" were slightly lower.

In contrast, junior stocks recorded a general rally, Great Western ordinary moving up to 53½, compared with 51 a week ago, L.M.S.R. from 24½ to 26½ and Southern deferred from 21 to 22½; elsewhere, L.N.E.R. second preference recovered from 25½ to 27½. London Transport "C" at 60½ was unchanged on balance. Demand for junior stocks reflected the upward trend which developed in equity securities of all kinds, but before the King's Speech the tendency became hesitant.

Argentine rails received more attention and moved higher, particularly prior charge

stocks, sentiment being aided by the payment on Central Argentine 5 per cent. debentures. Moreover, the peace developments tended to draw attention to hopes of good post-war prospects for the Argentine railways if the authorities in the Republic accord them fair treatment. The assumption is that prosperity in the Argentine is likely to increase, bearing in mind the expected big demand for South American products for the rehabilitation of Europe.

Buenos Ayres Great Southern rallied from 10½ to 11½, the 5 per cent. preference from 24½ to 26½, and the 4 per cent. debentures from 61 to 65. Central Argentine ordinary improved from 7½ to 8½, the 6 per cent. preference was 26½, and the 5 per cent. debentures were 67 xd., against 66½ a week ago. Buenos Ayres & Pacific consolidated debentures improved to 59, and Buenos Ayres Western 4 per cent. debentures to 57½. Central Uruguay issues moved higher on market expectations of pending developments. Elsewhere, however, Nitrate Rails receded to 71s. 3d. on the statements at the meeting. Canadian Pacific at 20½ were slightly lower on balance.

**TRANSPORT ADMINISTRATION IN CEYLON**  
—It is reported that the Ceylon Treasury has been examining a proposal to wind up the Department of the Director of Transport. It is stated that the work carried out at present by that department and its staff, probably would be transferred to the Department of the Commissioner of Motor Transport.

## Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ended	Traffic for week			Aggregate traffics to date			Shares or Stock	Prices						
			Total this year	Inc. or dec. compared with 1943/4	No. of Week	Totals		Increase or decrease		Highest 1944	Lowest 1944	August 14, 1945	Yield % (See Note)			
						1944/5	1943/4									
Antofagasta (Chili) & Bolivia	834	5.8.45	£ 25,940	—	£ 2,940	31	£ 939,980	£ 888,590	+	£ 51,390	Ord. Stk.	13½	9½	10 Nil		
Argentine North Eastern	753	4.8.45	21,400	+	3,719	5	97,775	86,106	+	11,669	6 p.c. Deb.	6½	4½	8 ½ Nil		
Boilvar	... ...	July, 1945	4,127	—	780	30	34,402	36,663	—	2,261	Bonds	19½	15	21 Nil		
Brazil	...	...	2,771	4.8.45	126,125	+	7,812	5	607,812	584,312	+	23,500	Ord. Stk.	7½	3½	5½ Nil
Buenos Ayres & Pacific	5,080	4.8.45	194,875	—	7,500	5	954,750	890,187	+	64,563	Ord. Stk.	14½	9½	11½ Nil		
Buenos Ayres Great Southern	1,924	4.8.45	62,687	+	1,187	5	338,750	321,500	+	17,250	"	13½	9½	11½ Nil		
Buenos Ayres Western	3,700	4.8.45	188,925	—	7,156	5	924,587	901,687	+	22,900	Dfd.	10½	6½	8½ Nil		
Central Argentine	...	Do.	...	...	...	...	...	...	...	...	Stk.	5½	4	Nil		
Cent. Uruguay of M. Video	972	28.7.45	38,494	—	6,574	4	147,027	142,927	+	4,100	Ord. Stk.	17½	14½	14 Nil		
Costa Rica	...	June, 1945	36,024	—	(2,773)	42	295,175	274,930	+	20,245	Stk.	101	101	101 £10½		
Dorada	...	June, 1945	33,780	—	7,554	26	182,375	149,309	+	33,066	I Mt. Deb.	101	101	101 £10½		
Entre Rios	...	808	4.8.45	26,487	—	2,437	5	134,150	120,688	+	13,462	Ord. Stk.	6½	4½	5 Nil	
Great Western of Brazil	1,030	4.8.45	22,300	—	4,400	31	766,600	672,700	+	93,900	Ord. Sh.	38/-	23½	25/- Nil		
International of Cl. Amer.	794	June, 1945	\$218,345	+	\$102,796	22	\$1,266,065	\$1,208,112	+	\$57,953	—	—	—	—		
Intercanadian of Mexico	...	Do.	...	...	...	...	...	...	...	...	1st Pref.	1½	½	1 Nil		
La Guaira & Caracas	22½	July, 1945	6,361	—	2,149	30	43,290	54,940	—	11,650	5 p.c. Deb.	88	79	78½ £67½		
Leopoldina	1,918	4.8.45	64,524	—	15,789	31	1,523,012	1,397,800	+	215,212	Ord. Stk.	57	4½	4½ Nil		
Mexican	483	31.7.45	ps. I,139,200	+	ps. 265,300	30	ps. 2,845,900	ps. 2,278,100	+	ps. 576,800	Ord. Stk.	4½	4½	4½ Nil		
Midland Uruguay	319	June, 1945	21,830	—	6,402	52	217,882	203,238	+	14,644	Ord. Stk.	110½	105	105 Nil		
Nitrato	...	31.7.45	8,060	—	3,654	30	103,976	110,635	—	6,659	Ord. Sh.	75/10	65/10	70/- £11½		
North Western of Uruguay	113	June, 1945	4,575	—	2,189	52	66,965	9,157½	—	24,607	Pr. Li. Stk.	79½	68	77½ £14/10		
Paraguay Central	274	3.8.45	£72,321	+	£17,176	5	£326,390	£285,284	+	£41,106	Pref.	9	10	9½ Nil		
Peruvian Corporation	1,059	July, 1945	134,750	—	16,110	4	—	c 1,484,000	+	c 27,000	Ord. Stk.	57½	46	54 £5 11½		
Salvador	...	100	June, 1945	c 91,000	+ c 11,000	52	c 1,511,000	c 1,484,000	+	c 27,000	Ord. Sh.	21/3	13½	13½ Nil		
San Paulo	...	153½	—	—	—	—	—	—	—	—	Ord. Sh.	4	2½	2 Nil		
Talca	...	156	July, 1945	1,785	—	30	4	—	—	—	Ord. Stk.	—	—	—		
United of Havana	1,301	4.8.45	43,411	—	2,354	5	223,871	237,212	—	13,341	Ord. Sh.	—	—	—		
Uruguay Northern	73	June, 1945	1,464	—	52	52	19,568	17,929	+	1,639	Ord. Stk.	—	—	—		
Canadian National	23,569	June, 1945	1,869,600	+	182,600	26	7,879,600	8,196,600	—	317,000	Ord. Stk.	—	—	—		
Canadian Pacific	17,028	7.8.45	1,239,400	+	57,000	31	37,980,600	37,560,600	+	420,000	Ord. Stk.	17½	13½	20½ 2½		
Barsi Light	202	June, 1945	19,620	—	4,185	14	74,595	75,487	—	892	Ord. Stk.	129½	97½	129½ £39½		
Beira	—	May, 1945	76,561	—	13,371	38	—	—	—	—	Pri. Sh.	7½	5½	6½ Nil		
Egyptian Delta	607	10.7.45	16,317	—	2,418	13	161,765	186,144	—	24,379	B. Dab.	63½	58	62½ Nil		
Manila	...	—	—	—	—	—	—	—	—	—	Inc. Deb.	101½	99½	95½ £43½		
Midland of W. Australia	277	June, 1945	11,866	—	8,048	52	219,103	332,901	—	113,798	—	—	—	—		
Nigeria	...	26.5.45	277,630	+	23,531	8	1,823,785	1,739,068	+	84,717	—	—	—	—		
Rhodesia	...	May, 1945	496,777	—	59,229	38	—	—	—	—	—	—	—	—		
South Africa	...	13,301	7.7.45	1,063,115	+	100,268	14	13,763,850	11,930,632	+	1,833,218	—	—	—		
Victoria	4,774	Mar., 1945	1,303,804	—	60,124	39	—	—	—	—	—	—	—	—		

Note. Yields are based on the approximate current price and are within a fraction of ½. Argentine traffics are given in sterling calculated @ 16 pesos to the £

† Receipts are calculated @ 1s. 6d. to the rupee.

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